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2	1	Cog. Mgr. A. D. Rice	<i>A. D. Rice</i>	1-30-97							
2	1	QA T. L. Tung	<i>T. L. Tung</i>	1/30/97							
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60-Day Waste Compatibility Safety Issues and Final Results for AY-102 Grab Samples

Jennifer L. Nuzum

Rust Federal Services of Hanford, Inc., Richland, WA 99352

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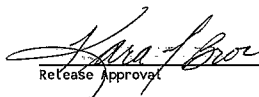
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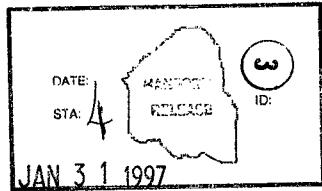
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ANALYTICAL SERVICES

60-DAY WASTE COMPATIBILITY SAFETY
ISSUES AND FINAL RESULTS FOR AY-102 GRAB SAMPLES

Project Coordinator: JENNIFER L. NUZUM

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

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NARRATIVE

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222-S ANALYTICAL SERVICES

**60-DAY WASTE COMPATIBILITY SAFETY ISSUES AND FINAL RESULTS
FOR TANK 241-AY-102 GRAB SAMPLES**

Summary

Four grab samples (2AY-96-15, 2AY-96-16, 2AY-96-17, and 2AY-96-18) were taken from Riser 15D of Tank 241-AY-102 on October 8, 1996, and received by 222-S Laboratory on October 8, 1996. These samples were analyzed in accordance with Compatibility Grab Sampling and Analysis Plan (TSAP) and Data Quality Objectives for Tank Farms Waste Compatibility Program (DQO) in support of the Waste Compatibility Program. No notifications were required based on sample results.

Appearance and Sample Breakdown

Attachment 1 illustrates subsamples generated in the laboratory for analyses and identifies their sources. Furthermore, this reference relates tank farm identification numbers to their corresponding 222-S Laboratory Information Management System sample numbers.

Table 1 summarizes appearance information and over-the-top (OTR) dose readings performed on each sample. For each sample, two 20 mL subsamples were created for inorganic and radiochemical analyses.

Table 1. Appearance and OTR for 241-AY-102 Liquid Grab Samples

Customer ID	Lab ID	Color	Clarity	Org. Layer	Solids	OTR (MRAD/HR)
2AY-96-15	S96T005362	Yellow	Clear	None	Trace	450
2AY-96-16	S96T005363	Yellow	Clear	None	Trace	300
2AY-96-17	S96T005364	Yellow	Clear	None	Trace	250
2AY-96-18	S96T005365	Yellow	Clear	None	Trace	650

Analytical Results

The Data Summary Table (Table 2) included in this report compiles analytical results and applicable action limits associated with each subsample.

Liquid subsamples that were prepared for analysis by an acid adjustment of the direct subsample are indicated by a "D" in the A# column in Table 2.

Compatibility Program Concerns

Differential Scanning Calorimetry (DSC) - Energetics Decision Rule

The exothermic energy based on dry weight of the subsample was calculated for all subsamples. The average of the thermogravimetric analysis (TGA) results for each subsample was used in the dry weight correction for that subsample. There were no exceptions to the quality control (QC) parameters stated in TSAP for these samples.

For waste compatibility energetics decision concerns, the exotherm/endortherm ratio must be less than one (1). Exotherm results for all subsamples were 0.00 J/g. Thus, this requirement was satisfied for all subsamples.

Nitrate (NO₃-), Hydroxide (OH-), and Nitrite (NO₂-) - Corrosion Decision Rule

Results with respect to waste compatibility corrosion rules are presented in Table 3. This table presents NO₃-, OH-, and NO₂- results in $\mu\text{g/mL}$ and molarity (M) units. The spreadsheet compares results to the concentration ranges specified in DQO. A "YES" will appear in the appropriate space for a condition that is met. Based on the NO₃- concentration, only one of three sets of conditions must be met for OH- and NO₂- concentrations. A "NO" appearing in the space is indicative of a condition not met. All conditions for corrosion control were satisfied. There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Specific Gravity (Sp.G) - Flammable Gas Accumulation Decision Rule

Sp.G analysis is currently used to determine the potential the waste will cause an accumulation of flammable gases. The flammable gas decision rule requires the weighted mean Sp.G not exceed 1.41. The mean Sp.G for the four supernate subsamples was equal to 0.99. There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Plutonium (239/240Pu) - Criticality Decision Rule

All 239/240Pu results were below the criticality prevention limit of 0.80 $\mu\text{Ci/mL}$ stated in DQO. There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Inorganic Analyses

Thermogravimetric Analysis (TGA)

TGA results were typically determined by summing weight loss steps below 200°C. Weight loss steps above this were not used to determine the result. More information may be obtained by examining the raw data. There were no exceptions to the QC parameters stated in TSAP for these subsamples.

pH

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Ion Chromatography (IC)

Only required analyte results (Cl-, F-, PO4-, SO4-, NO3-, and NO2-) were considered in this report. Other "opportunistic" analyte results (Kristofski, 1995) are included in Table 2. These analytes do not have customer defined QC parameters and are not discussed.

The F- spike recoveries for the subsamples of 2AY-96-15 (S96T005366) and 2AY-96-17 (S96T005455) were 129.2% and 135.6%, respectively. These elevated recoveries are due to organic acid interference. No reruns were requested.

Inductively Coupled Plasma Spectrophotometry (ICP)

Only required analytes (Al, Fe, Na) were considered in this report. Other "opportunistic" analytes are included in Table 2. These analytes do not have customer defined QC parameters and are not discussed.

The Na spike recovery shown in Table 2 for the subsample of 2AY-96-15 (S96T005366) is invalid because the spike concentration (1 ppm) is too low in comparison to the sample concentration (less than 25%). The raw data shows the spike recovery for a spike with an analyte level of 10 ppm. The spike recovery was 114.9%.

Total Organic Carbon (TOC)

Subsample 2AY-96-16 (S96T005454) was rerun due to poor precision, and the resulting RPD between sample and duplicate was 24.8%. The poor precision is due to inhomogeneity between sample and duplicate, and further TOC analysis was not requested.

Total Inorganic Carbon (TIC)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Radionuclide Analyses

Americium (241Am)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Strontium 90 (90Sr)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Gamma Energy Analysis (GEA)

Cesium 137 results only were considered in this report. Cobalt 60 results were included in Table 2 as "opportunistic." This analyte does not have customer defined QC parameters and is not discussed. There were no exceptions to the QC parameters stated in TSAP for these subsamples.

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Procedures

Table 4 lists the analytical procedures used for performing sample analyses. Abbreviations for analyses are defined in the table notes.

Table 4. Analytical Procedures

Analysis	Matrix	Preparation Procedure +	Analysis Procedure
DSC	Liquid	N/A	LA-514-114 Rev. C-1
TGA	Liquid	N/A	LA-560-112 Rev. B-1
Sp.G.	Liquid	N/A	LA-510-112 Rev. C-3
pH	Liquid	N/A	LA-212-106 Rev. A-0
OH-	Liquid	N/A	LA-211-102 Rev. C-0
IC	Liquid	N/A	LA-533-105 Rev. D-1
ICP	Liquid	N/A	LA-505-161 Rev. B-1
TOC	Liquid	N/A	LA-344-105 Rev. D-1
TIC	Liquid	N/A	LA-342-100 Rev. E-0
239/240Pu	Liquid	N/A	LA-943-128 Rev. B-0
241Am	Liquid	N/A	LA-953-103 Rev. A-5

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GEA	Liquid	N/A	LA-548-121 Rev. E-0
90Sr	Liquid	N/A	LA-220-101 Rev. D-1

Notes:

N/A not applicable (these are direct samples)
 DSC differential scanning calorimetry
 TGA thermogravimetric analysis
 Sp.G. specific gravity
 OH- hydroxide
 IC ion chromatography
 ICP inductively coupled plasma
 TOC total organic carbon
 TIC total inorganic carbon
 239/240Pu plutonium 239/240
 241Am americium 241
 GEA gamma energy analysis
 90Sr strontium-90

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References

Sasaki, L.M., 1996, *Compatibility Grab Sampling and Analysis Plan for Fiscal Year 1997*, WHC-SD-WM-TSAP-115, Revision 0, Westinghouse Hanford Company, Richland, WA 99352.

Fowler, K.D., 1995, *Data Quality Objectives for Tank Waste Compatibility Program*, WHC-SD-WM-DQO-001, Revision 1, Westinghouse Hanford Company, Richland, WA 99352.

BREAKDOWN ANALYSIS

HNF-SD-WM-DP-222, REV. 0

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Attachment 1

AY-102 GRAB SAMPLE BREAKDOWN

Riser 15D

399 in.

2AY-96-15

S96T005362



420 in.

2AY-96-16

S96T005363



549 in.

2AY-96-17

S96T005364



659 in.

2AY-96-18

S96T005365



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S96T005366



S96T005367



S96T005454



S96T005457



S96T005455



S96T005458



S96T005456



S96T005459



DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

GEA: Cs-137
Pu-239/240
Sr-90
Am-241

DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

GEA: Cs-137
Pu-239/240
Sr-90
Am-241

DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

GEA: Cs-137
Pu-239/240
Sr-90
Am-241

DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

GEA: Cs-137
Pu-239/240
Sr-90
Am-241

LABCORE Completed Worklist Report for Worklist# 14008

Analyst: srm

Instrument: NONE

Book# _____

Method: LA-519-151 Rev/Mod E2

Worklist Comment: AY-102 GRAB. new

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 SAMPLE	S96T005362 0	0BRKDOWN1 DOSERATE LIQUID	N/A	450	9.99e-002	mrad/hour	
1 SAMPLE	S96T005362 0	0BRKDOWN1 APPEAR02 LIQUID	N/A	complete			
1 SAMPLE	S96T005362 0	0BRKDOWN1 SAMPANT2 LIQUID	N/A	125		mL	
2 SAMPLE	S96T005363 0	0BRKDOWN1 DOSERATE LIQUID	N/A	300	9.99e-002	mrad/hour	
2 SAMPLE	S96T005363 0	0BRKDOWN1 APPEAR02 LIQUID	N/A	complete			
2 SAMPLE	S96T005363 0	0BRKDOWN1 SAMPANT2 LIQUID	N/A	125		mL	
3 SAMPLE	S96T005364 0	0BRKDOWN1 DOSERATE LIQUID	N/A	250	9.99e-002	mrad/hour	
3 SAMPLE	S96T005364 0	0BRKDOWN1 APPEAR02 LIQUID	N/A	complete			
3 SAMPLE	S96T005364 0	0BRKDOWN1 SAMPANT2 LIQUID	N/A	125		mL	
4 SAMPLE	S96T005365 0	0BRKDOWN1 DOSERATE LIQUID	N/A	650	9.99e-002	mrad/hour	
4 SAMPLE	S96T005365 0	0BRKDOWN1 APPEAR02 LIQUID	N/A	complete			
4 SAMPLE	S96T005365 0	0BRKDOWN1 SAMPANT2 LIQUID	N/A	125		mL	

Final page for worklist# 14008

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

 10/16/96
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 14008

Analyst: SRM Instrument: NONE Book # NA

Method: LA-519-151 Rev/Mod E-2

Worklist Comment: AY-102 GRAB. new

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001366	AY-102 GRAB	1 SAMPLE	S96T005362	0	@BRKDW1 DOSERATE	LIQUID	N/A	<u>450</u>		mrad/hour
96001366	AY-102 GRAB	1 SAMPLE	S96T005362	0	@BRKDW1 APPEAR02	LIQUID	N/A	<u>complete</u>		
96001366	AY-102 GRAB	1 SAMPLE	S96T005362	0	@BRKDW1 SAMPANT2	LIQUID	N/A	<u>125</u>		ml
96001366	AY-102 GRAB	2 SAMPLE	S96T005363	0	@BRKDW1 DOSERATE	LIQUID	N/A	<u>300</u>		mrad/hour
96001366	AY-102 GRAB	2 SAMPLE	S96T005363	0	@BRKDW1 APPEAR02	LIQUID	N/A	<u>complete</u>		
96001366	AY-102 GRAB	2 SAMPLE	S96T005363	0	@BRKDW1 SAMPANT2	LIQUID	N/A	<u>125</u>		ml
96001366	AY-102 GRAB	3 SAMPLE	S96T005364	0	@BRKDW1 DOSERATE	LIQUID	N/A	<u>250</u>		mrad/hour
96001366	AY-102 GRAB	3 SAMPLE	S96T005364	0	@BRKDW1 APPEAR02	LIQUID	N/A	<u>complete</u>		
96001366	AY-102 GRAB	3 SAMPLE	S96T005364	0	@BRKDW1 SAMPANT2	LIQUID	N/A	<u>125</u>		ml
96001366	AY-102 GRAB	4 SAMPLE	S96T005365	0	@BRKDW1 DOSERATE	LIQUID	N/A	<u>650 gm</u> <u>450</u> 9/10/15/96		mrad/hour
96001366	AY-102 GRAB	4 SAMPLE	S96T005365	0	@BRKDW1 APPEAR02	LIQUID	N/A	<u>complete</u>		
96001366	AY-102 GRAB	4 SAMPLE	S96T005365	0	@BRKDW1 SAMPANT2	LIQUID	N/A	<u>125</u>		ml

Final page for worklist # 14008

Smialowski 10-15-96
Analyst Signature Date

Analyst Signature Date

S96T005362	trace solids	clear yellow liquid	no organic layer
S96T005363	trace solids	clear yellow liquid	no organic layer
S96T005364	trace solids	clear yellow liquid	no organic layer
S96T005365	trace solids	clear yellow liquid	no organic layer

Data Entry Comments:

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SAMPLE DATA SUMMARY

HNF-SD-WM-DP-222, REV. 0

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RISER: 150
SEGMENT #: 2AY-96-15

SEGMENT PORTION: Supernate

Table 2. Data Summary Table
AY102 GRAB1

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S961005362		Dose Rate in mrad/hour	mrad/hour	n/a	n/a	4.50e-02	n/a	n/a	n/a	n/a	1.00e-01	n/a
S961005366		Dose Rate in mrad/hour	mrad/hour	n/a	n/a	25.00e-02	n/a	n/a	n/a	n/a	1.00e-01	n/a
S961005366		BSC Exotherm using Mettler	Joules/g	95.25	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S961005366		BSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S961005366		OH- by Pot. Titration	pH	99.16	<42.00	2.47e+03	2.55e+03	2.51e+03	3.19	n/a	250.0	n/a
S961005366		pH Direct	pH	99.29	n/a	13.19	13.19	13.19	0.00	n/a	1.00e-02	n/a
S961005366		Specific Gravity	Sp. G.	98.10	n/a	9.98e-01	9.95e-01	9.92e-01	0.71	n/a	1.00e-03	n/a
S961005366		% Water by TGA using Mettler	%	101.0	n/a	98.11	97.94	98.03	0.17	n/a	n/a	n/a
S961005366		TIC by Acid/Coulometry	ug/mL	98.01	22.90	8.20e+02	862.0	841.0	4.99	103.7	5.000	n/a
S961005366		TIC Organic Carbon by Coul.	ug/mL	99.33	8.00e-01	2.68e+02	281.0	274.5	4.74	91.60	5.500	n/a
S961005366		0 Silver-ICP-Acid Dil.	ug/mL	102.4	<1.00e-02	5.03e-01	4.89e-01	4.96e-01	2.82	94.70	2.00e-01	n/a
S961005366		0 Aluminum-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	15.80	15.70	15.75	0.63	99.00	1.000	n/a
S961005366		0 Arsenic-ICP-Acid Dil.	ug/mL	106.2	<1.00e-01	< 2.000	<2.000	n/a	n/a	109.0	2.000	n/a
S961005366		0 Boron-ICP-Acid Dil.	ug/mL	103.2	<5.00e-02	< 14.00	13.90	13.95	0.72	99.50	1.000	n/a
S961005366		0 Barium-ICP-Acid Dil.	ug/mL	106.2	<5.00e-02	< 1.000	<1.00e-01	n/a	n/a	99.60	1.000	n/a
S961005366		0 Beryllium-ICP-Acid Dil.	ug/mL	104.8	<1.00e-01	< 2.000	<2.00e-01	n/a	n/a	104.0	1.00e-01	n/a
S961005366		0 Bismuth-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	< 2.000	<2.00e-01	n/a	n/a	102.0	2.000	n/a
S961005366		0 Calcium-ICP-Acid Dil.	ug/mL	103.2	<5.00e-03	<1.00e-01	<1.00e-1	n/a	n/a	102.0	1.00e-01	n/a
S961005366		0 Cerium-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	< 2.000	<4.00e-1	n/a	n/a	101.0	2.000	n/a
S961005366		0 Cobalt-ICP-Acid Dil.	ug/mL	101.8	<2.00e-02	<4.00e-01	<4.00e-1	n/a	n/a	99.80	4.00e-01	n/a
S961005366		0 Chromium-ICP-Acid Dil.	ug/mL	104.0	<1.00e-02	20.00	20.10	20.05	0.50	104.0	2.00e-01	n/a
S961005366		0 Copper-ICP-Acid Dil.	ug/mL	106.0	<1.00e-02	2.36e-01	2.08e-01	2.22e-01	12.6	102.0	2.00e-01	n/a
S961005366		0 Iron-ICP-Acid Dil.	ug/mL	103.4	<5.00e-02	< 1.000	<1.00e-01	n/a	n/a	100.0	1.000	n/a
S961005366		0 Potassium-ICP-Acid Dil.	ug/mL	100.4	<5.00e-01	5.33e+02	527.0	330.0	1.82	104.0	10.00	n/a
S961005366		0 Lanthanum-ICP-Acid Dil.	ug/mL	105.0	<5.00e-02	< 1.000	<1.00e-01	n/a	n/a	103.0	1.000	n/a
S961005366		0 Lithium-ICP-Acid Dil.	ug/mL	105.2	<1.00e-02	8.85e-01	8.98e-01	8.91e-01	1.46	102.0	2.00e-01	n/a
S961005366		0 Magnesium-ICP-Acid Dil.	ug/mL	99.80	<1.00e-01	< 2.000	<2.00e-01	n/a	n/a	91.90	2.000	n/a
S961005366		0 Manganese-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	<2.00e-01	<2.00e-01	n/a	n/a	96.60	2.00e-01	n/a
S961005366		0 Molybdenum-ICP-Acid Dil.	ug/mL	100.8	<5.00e-02	< 1.000	<1.00e-01	n/a	n/a	102.0	1.000	n/a
S961005366		0 Sodium-ICP-Acid Dil.	ug/mL	101.2	<1.00e-01	6.89e+03	6.81e+03	6.85e+03	1.17	2.500e-1	2.000	n/a
S961005366		0 Neodymium-ICP-Acid Dil.	ug/mL	104.8	<1.00e-01	<4.00e-01	<4.00e-1	n/a	n/a	102.0	2.000	n/a
S961005366		0 Nickel-ICP-Acid Dil.	ug/mL	103.4	<2.00e-02	<4.00e-01	<4.00e-01	n/a	n/a	102.0	4.00e-01	n/a
S961005366		0 Phosphorus-ICP-Acid Dil.	ug/mL	103.2	<2.00e-01	1.89e+02	189.0	189.0	0.00	99.40	4.000	n/a
S961005366		0 Lead-ICP-Acid Dil.	ug/mL	102.4	<1.00e-01	< 2.000	<2.00e-01	n/a	n/a	100.0	2.000	n/a
S961005366		0 Sulfur-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 94.80	94.20	94.50	0.63	99.70	2.000	n/a
S961005366		0 Antimony-ICP-Acid Dil.	ug/mL	97.00	<6.00e-02	< 1.200	<1.20e-01	2.530	25.3	95.40	1.200	n/a
S961005366		0 Selenium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	2.210	2.850	2.530	0.00	111.0	2.000	n/a
S961005366		0 Silicon-ICP-Acid Dil.	ug/mL	98.00	<5.00e-02	1.06e+02	106.0	106.0	0.00	101.0	1.000	n/a
S961005366		0 Strontium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 2.000	<2.00e-01	n/a	n/a	98.60	2.00e-01	n/a
S961005366		0 Thallium-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	97.50	2.00e-01	n/a
S961005366		0 Titanium-ICP-Acid Dil.	ug/mL	98.80	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	97.50	2.00e-01	n/a
S961005366		0 Thallium-ICP-Acid Dil.	ug/mL	100.2	<2.00e-01	< 4.000	<4.00e-01	n/a	n/a	95.00	4.000	n/a

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Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S961005366	D	Uranium-ICP-Acid Dil.	ug/mL	97.80	<5.00e-02	19.70	21.70	20.70	9.66	99.50	10.00	n/a
S961005366	D	Vanadium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-02	< 1.000	<1.00e0	n/a	n/a	99.70	1.000	n/a
S961005366	D	Zinc-ICP-Acid Dil.	ug/mL	101.8	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	101.0	2.00e-01	n/a
S961005366	D	Zirconium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	97.40	2.00e-01	n/a
S961005366		Fluoride-IC-Dionex 4000/4500	ug/mL	102.9	<1.20e-02	4.131	4.070	4.101	1.46	129.2	1.212	n/a
S961005366		Chloride-IC-Dionex 4000/4500	ug/mL	105.9	<1.70e-02	1.11e+02	112.0	111.3	0.90	100.9	1.717	n/a
S961005366		Nitrite-IC - Dionex 4000/4500	ug/mL	99.81	<1.08e-01	7.59e+02	763.0	760.9	0.53	104.5	10.91	n/a
S961005366		Bromide by Ion Chromatograph	ug/mL	101.9	<1.25e-01	< 12.62	<1.26e1	n/a	n/a	96.94	12.62	n/a
S961005366		Nitrate by IC-Dionex 4000/4500	ug/mL	102.5	<1.39e-01	3.98e+02	400.0	399.1	0.50	105.1	14.04	n/a
S961005366		Phosphate-IC-Dionex 4000/4500	ug/mL	102.6	<1.20e-01	5.16e+02	522.0	519.0	1.16	103.9	12.12	n/a
S961005366		Sulfate by IC-Dionex 4000/4500	ug/mL	103.3	<1.38e-01	2.60e+02	258.0	258.9	0.77	100.8	13.94	n/a
S961005366		Oxalate by IC-Dionex 4000/4500	ug/mL	101.1	<1.05e-01	51.51	52.60	52.05	2.11	101.1	10.61	n/a
S961005367		Dose Rate in mrad/hour	mrad/hour	n/a	n/a	25.00	n/a	n/a	n/a	n/a	1.00e-01	n/a
S961005367		Strontium-89/90 High Level	uci/mL	106.5	1.00e-03	9.29e-02	9.89e-02	9.59e-02	6.26	n/a	9.24e-05	9.61E-01
S961005367		Pu-239/240 by TRU-SPEC Resin	uci/mL	86.58	<3.05e-06	5.97e-06	5.72e-06	5.84e-06	4.28	n/a	3.44e-06	4.97E+00
S961005367		Cobalt-60 by GEA	uci/mL	94.61	<2.63e-05	<5.78e-05	<6.90e-5	n/a	n/a	n/a	5.78e-05	n/a
S961005367		Cesium-137 by GEA	uci/mL	94.16	<7.51e-05	2.260	2.270	2.265	0.44	n/a	n/a	0.160
S961005367		Am-241 by Extraction	uci/mL	82.44	<5.63e-06	1.55e-05	1.30e-05	1.43e-05	17.5	n/a	7.73e-06	3.32E+00

Table 2. Data Summary Table
AY102 GRAB1

Sample#	RA#	Institute	Unit	Standard %	Blank	Result	Duplicate	Average	RPD, %	Spk Rec. %	Det Limit	Count	Err%
S961005453		Dose Rate in mrad/hour	mrad/hour	N/A	N/A	3.00e+02	N/A	N/A	N/A	N/A	1.00e-01		N/A
S961005454		Dose Rate in mrad/hour	mrad/hour	N/A	N/A	20.00	N/A	N/A	N/A	N/A	1.00e-01		N/A
S961005455		Dose Extremum using Mettler	Joules/g	95.25	N/A	0.00e+00	0.00e+00	0.00e+00	0.00	N/A	N/A		N/A
S961005456		Dose Extremum using Mettler	Joules/g	95.16	N/A	0.00e+00	0.00e+00	0.00e+00	0.00	N/A	N/A		N/A
S961005457		On- by Pot. Titration	ug/mL	99.16	<42.00	2.54e+03	2.53e+03	2.53e+03	1.95	N/A	290.0		N/A
S961005458		pH Direct	pH	99.29	N/A	13.27	13.27	13.27	0.00	N/A	1.00e-02		N/A
S961005459		Specific Gravity	Sp.G.	98.10	N/A	9.83e-01	9.92e-01	9.88e-01	0.71	N/A	1.00e-03		N/A
S961005460		Water by TGA using Mettler	%	101.0	N/A	98.04	98.22	98.13	0.18	N/A	N/A		N/A
S961005461		TIC by AcidCoulometry	ug/mL	99.33	8.00e-01	3.54e+02	824.0	818.0	0.36	N/A	5.000		N/A
S961005462		tot. organic Carbon by Coul.	ug/mL	102.4	<1.00e-02	4.94e-01	5.02e-01	4.98e-01	1.61	N/A	2.00e-01		N/A
S961005463		Aluminum-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	1.50	15.90	15.70	2.55	N/A	1.000		N/A
S961005464		Aluminum-ICP-Acid Dil.	ug/mL	108.2	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005465		Arsenic-ICP-Acid Dil.	ug/mL	102.0	<5.00e-02	13.50	13.50	13.50	0.00	N/A	1.000		N/A
S961005466		Boron-ICP-Acid Dil.	ug/mL	103.2	<5.00e-02	< 1.000	<1.00e0	N/A	N/A	N/A	1.000		N/A
S961005467		Barium-ICP-Acid Dil.	ug/mL	106.2	<5.00e-03	<1.00e-01	<1.00e-1	N/A	N/A	N/A	1.00e-01		N/A
S961005468		Beryllium-ICP-Acid Dil.	ug/mL	104.8	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005469		Blanthum-ICP-Acid Dil.	ug/mL	102.2	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005470		Calcium-ICP-Acid Dil.	ug/mL	103.2	<5.00e-03	<1.00e-01	<1.00e-1	N/A	N/A	N/A	1.00e-01		N/A
S961005471		Cadmium-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005472		Cerium-ICP-Acid Dil.	ug/mL	101.8	<2.00e-02	<4.00e-01	<4.00e-1	N/A	N/A	N/A	4.00e-01		N/A
S961005473		Cobalt-ICP-Acid Dil.	ug/mL	104.0	<1.00e-02	19.70	19.90	19.80	1.01	N/A	2.00e-01		N/A
S961005474		Chromium-ICP-Acid Dil.	ug/mL	106.0	<1.00e-02	2.05e-01	2.18e-01	2.11e-01	6.15	N/A	2.00e-01		N/A
S961005475		Copper-ICP-Acid Dil.	ug/mL	103.4	<5.00e-01	< 1.000	<1.00e0	N/A	N/A	N/A	1.000		N/A
S961005476		Iron-ICP-Acid Dil.	ug/mL	100.4	<5.00e-01	3.23e+02	329.0	326.0	1.84	N/A	10.000		N/A
S961005477		Potassium-ICP-Acid Dil.	ug/mL	105.0	<5.00e-02	< 1.000	<1.00e0	N/A	N/A	N/A	1.000		N/A
S961005478		Lanthanum-ICP-Acid Dil.	ug/mL	105.2	<1.00e-02	8.52e-01	8.71e-01	8.61e-01	2.21	N/A	2.00e-01		N/A
S961005479		Lithium-ICP-Acid Dil.	ug/mL	99.80	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005480		Magnesium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-02	<2.00e-01	<2.00e-1	N/A	N/A	N/A	2.00e-01		N/A
S961005481		Manganese-ICP-Acid Dil.	ug/mL	102.0	<5.00e-02	< 1.000	<1.00e0	N/A	N/A	N/A	1.000		N/A
S961005482		Molybdenum-ICP-Acid Dil.	ug/mL	101.2	<1.00e-01	6.68e+03	6.79e+03	6.74e+03	1.63	N/A	2.000		N/A
S961005483		Sodium-ICP-Acid Dil.	ug/mL	104.8	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005484		Neodymi-um-ICP-Acid Dil.	ug/mL	103.4	<2.00e-02	<4.00e-01	<4.00e-1	N/A	N/A	N/A	4.00e-01		N/A
S961005485		Nickel-ICP-Acid Dil.	ug/mL	103.2	<2.00e-01	1.84e+02	187.0	185.5	1.62	N/A	4.000		N/A
S961005486		Phosphorus-ICP-Acid Dil.	ug/mL	102.8	<1.00e-01	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005487		Lead-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	91.80	94.10	92.95	2.47	N/A	2.000		N/A
S961005488		Sulfur-ICP-Acid Dil.	ug/mL	97.00	<5.00e-02	< 1.200	<1.20e0	2.570	10.9	N/A	1.200		N/A
S961005489		Antimony-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	2.710	2.430	2.570	10.9	N/A	2.000		N/A
S961005490		Selenium-ICP-Acid Dil.	ug/mL	98.00	<5.00e-02	1.02e+02	104.0	103.0	1.94	N/A	1.000		N/A
S961005491		Silicon-ICP-Acid Dil.	ug/mL	102.6	<1.00e-02	< 2.000	<2.00e0	N/A	N/A	N/A	2.000		N/A
S961005492		Samarium-ICP-Acid Dil.	ug/mL	101.0	<1.00e-01	< 2.000	<2.00e-1	N/A	N/A	N/A	2.00e-01		N/A
S961005493		Strontium-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	<2.00e-01	<2.00e-1	N/A	N/A	N/A	2.00e-01		N/A
S961005494		Titanium-ICP-Acid Dil.	ug/mL	98.80	<1.00e-02	<2.00e-01	<2.00e-1	N/A	N/A	N/A	2.00e-01		N/A
S961005495		Thallium-ICP-Acid Dil.	ug/mL	100.2	<2.00e-01	< 4.000	<4.00e0	N/A	N/A	N/A	4.000		N/A

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Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S967003454	D	Uranium-ICP-Acid Dil.	ug/mL	97.80	<5.00e-01	20.60	20.40	20.50	0.98	n/a	10.00	n/a
S967003454	D	Vanadium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-02	< 1.000	<1.00e-1	n/a	n/a	n/a	1.000	n/a
S967003454	D	Zinc-ICP-Acid Dil.	ug/mL	101.8	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S967003454	D	Zirconium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S967003454		Fluoride-IC-Dionex 4000/4500	ug/mL	102.9	<1.00e-02	4.433	4.250	4.341	4.15	n/a	1.212	n/a
S967003454		Chloride-IC-Dionex 4000/4500	ug/mL	105.9	<1.70e-02	1.17e+02	117.0	117.1	0.00	n/a	1.717	n/a
S967003454		Nitrite-IC - Dionex 4000/4500	ug/mL	99.81	<1.08e-01	7.86e+02	782.0	783.9	0.51	n/a	10.91	n/a
S967003454		Bromide by Ion Chromatograph	ug/mL	101.9	<1.25e-01	< 12.62	<1.26e1	n/a	n/a	n/a	12.62	n/a
S967003454		Nitrate by IC-Dionex 4000/4500	ug/mL	102.5	<1.39e-01	4.13e+02	420.0	416.6	1.68	n/a	14.04	n/a
S967003454		Phosphate-IC-Dionex 4000/4500	ug/mL	102.6	<1.20e-01	5.62e+02	539.0	550.8	4.18	n/a	12.12	n/a
S967003454		Sulfate by IC-Dionex 4000/4500	ug/mL	103.3	<1.38e-01	2.65e+02	280.0	272.6	5.50	n/a	13.94	n/a
S967003454		Oxalate by IC-Dionex 4000/4500	ug/mL	101.1	<1.05e-01	63.69	54.10	58.89	16.3	n/a	10.61	n/a
S967003457		Dose Rate in mrad/hour	mrad/hour	n/a	n/a	25.00	n/a	n/a	n/a	n/a	1.00e-01	n/a
S967003457		Strontium-89/90 High Level	uCi/mL	106.51	1.00e-03	1.87e-02	1.72e-02	1.80e-02	8.36	n/a	9.47e-05	2.19E+00
S967003457		PU-239/240 by TRU-SPEC Resin	uCi/mL	86.58	<3.05e-06	<3.35e-06	4.20e-06	n/a	n/a	n/a	3.35e-06	7.03E+00
S967003457		Cobalt-60 by GEA	uCi/mL	94.61	<2.63e-05	<6.51e-05	<7.16e-5	n/a	n/a	n/a	6.51e-05	n/a
S967003457		Cesium-137 by GEA	uCi/mL	94.16	<7.51e-05	2.290	2.270	2.280	0.88	n/a	n/a	0.160
S967003457		Am-241 by Extraction	uCi/mL	82.44	<5.63e-06	<6.17e-06	<6.61E-6	n/a	n/a	n/a	6.17e-06	1.00E+02

Table 2. Data Summary Table
AY102 GRAB1

Sample #	Analvse	Unit	Standard %	Blank	Result	Duplicate	Average	RPD, %	Spk. Rec. %	Det Limit	Count	Err%
S961005346	Dose Rate in mrad/hour	mrad/hour	n/a	n/a	2.50e+02	n/a	n/a	n/a	n/a	1.00e-01	n/a	n/a
S961005346	Dose Rate in mrad/hour	mrad/hour	n/a	n/a	35.00	n/a	n/a	n/a	n/a	1.00e-01	n/a	n/a
S961005345	OSC Exotherm in mrad/hour	Joules/g	97.36	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S961005345	OSC Exotherm Dly Calculated	Joules/g Dly	97.36	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S961005345	On - by Pot. Titration	ug/mL	99.14	<2.00	2.50e+03	2.60e+03	2.35e+03	3.92	n/a	250.0	n/a	n/a
S961005345	Bt Direct	gH	99.20	n/a	13.36	13.36	13.36	n/a	n/a	1.00e-02	n/a	n/a
S961005345	Specific gravity	Sp.G.	98.10	n/a	9.90e-01	9.90e-01	9.92e-01	0.90	n/a	1.00e-03	n/a	n/a
S961005345	% Water by IGA using Mettler	ug/mL	101.2	n/a	98.00	97.93	97.93	0.01	n/a	5.00e	n/a	n/a
S961005345	TIC by Acid/Coulometry	ug/mL	101.0	3.00e-01	7.80e-02	811.0	767.2	3.39	103.1	5.00e	n/a	n/a
S961005345	Tot. Organic Carbon by Coul.	ug/mL	90.33	1.400	1.42e+02	125.0	133.3	12.7	82.10	5.30e	n/a	n/a
S961005345	Aluminum-ICP-Acid Dtl.	ug/mL	102.4	<1.00e-02	4.73e-01	4.53e-01	4.64e-01	4.74	n/a	2.00e-01	n/a	n/a
S961005345	Aluminum-ICP-Acid Dtl.	ug/mL	101.4	<5.00e-02	15.50	14.50	15.00	6.67	n/a	1.00e	n/a	n/a
S961005345	Boron-ICP-Acid Dtl.	ug/mL	102.0	<5.00e-02	1.00	10.50	10.53	6.57	n/a	1.00e	n/a	n/a
S961005345	Boron-ICP-Acid Dtl.	ug/mL	103.2	<5.00e-02	< 1.00e	<1.00e0	n/a	n/a	n/a	1.00e	n/a	n/a
S961005345	Beryllium-ICP-Acid Dtl.	ug/mL	106.2	<5.00e-03	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a	n/a
S961005345	Bismuth-ICP-Acid Dtl.	ug/mL	104.8	<1.00e-01	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Calcium-ICP-Acid Dtl.	ug/mL	102.2	<1.00e-01	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Calcium-ICP-Acid Dtl.	ug/mL	103.2	<5.00e-03	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a	n/a
S961005345	Cerium-ICP-Acid Dtl.	ug/mL	103.2	<1.00e-01	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Cobalt-ICP-Acid Dtl.	ug/mL	101.8	<2.00e-02	<4.00e-01	<4.00e-1	n/a	n/a	n/a	4.00e-01	n/a	n/a
S961005345	Chromium-ICP-Acid Dtl.	ug/mL	104.0	<1.00e-02	20.10	19.70	19.90	n/a	n/a	2.00e-01	n/a	n/a
S961005345	Copper-ICP-Acid Dtl.	ug/mL	106.0	<1.00e-02	2.09e-01	2.03e-01	2.06e-01	2.91	n/a	2.00e-01	n/a	n/a
S961005345	Iron-ICP-Acid Dtl.	ug/mL	103.4	<5.00e-02	< 1.00e	<1.00e0	n/a	n/a	n/a	1.00e	n/a	n/a
S961005345	Potassium-ICP-Acid Dtl.	ug/mL	100.4	<5.00e-01	3.33e+02	304.0	318.5	9.11	n/a	10.00	n/a	n/a
S961005345	Lanthanum-ICP-Acid Dtl.	ug/mL	105.0	<5.00e-02	< 1.00e	<1.00e0	n/a	n/a	n/a	1.00e	n/a	n/a
S961005345	Lithium-ICP-Acid Dtl.	ug/mL	105.2	<1.00e-02	8.71e-01	8.52e-01	8.61e-01	2.21	n/a	2.00e-01	n/a	n/a
S961005345	Magnesium-ICP-Acid Dtl.	ug/mL	99.80	<1.00e-01	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Manganese-ICP-Acid Dtl.	ug/mL	100.81	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a	n/a
S961005345	Molybdenum-ICP-Acid Dtl.	ug/mL	102.0	<5.00e-02	< 1.00e	<1.00e0	n/a	n/a	n/a	1.00e	n/a	n/a
S961005345	Sodium-ICP-Acid Dtl.	ug/mL	101.2	<1.00e-01	6.76e+03	6.19e+03	6.48e+03	8.80	n/a	2.00e	n/a	n/a
S961005345	Neodymium-ICP-Acid Dtl.	ug/mL	104.8	<1.00e-02	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Nickel-ICP-Acid Dtl.	ug/mL	103.4	<2.00e-02	<4.00e-01	<4.00e-1	n/a	n/a	n/a	4.00e-01	n/a	n/a
S961005345	Phosphorus-ICP-Acid Dtl.	ug/mL	103.2	<2.00e-01	1.91e+02	179.0	185.0	6.49	n/a	4.00e	n/a	n/a
S961005345	Lead-ICP-Acid Dtl.	ug/mL	102.8	<1.00e-01	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Sulfur-ICP-Acid Dtl.	ug/mL	100.4	<1.00e-01	94.80	90.70	92.75	4.42	n/a	2.00e	n/a	n/a
S961005345	Antimony-ICP-Acid Dtl.	ug/mL	97.00	<6.00e-02	< 1.200	<1.20e0	n/a	n/a	n/a	1.200	n/a	n/a
S961005345	Selenium-ICP-Acid Dtl.	ug/mL	99.40	<1.00e-02	2.590	3.340	2.965	25.3	n/a	2.00e	n/a	n/a
S961005345	Silicon-ICP-Acid Dtl.	ug/mL	98.00	<5.00e-02	90.70	87.50	89.10	3.59	n/a	1.00e	n/a	n/a
S961005345	Samarium-ICP-Acid Dtl.	ug/mL	102.6	<1.00e-01	< 2.00e	<2.00e0	n/a	n/a	n/a	2.00e	n/a	n/a
S961005345	Strontium-ICP-Acid Dtl.	ug/mL	101.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a	n/a
S961005345	Titanium-ICP-Acid Dtl.	ug/mL	98.80	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a	n/a
S961005345	Thallium-ICP-Acid Dtl.	ug/mL	100.2	<2.00e-02	< 4.00e	<4.00e0	n/a	n/a	n/a	4.00e	n/a	n/a

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S925T005455	D	Uranium-ICP-Acid Dil.	ug/ml	97.80	<5.00e-01	21.10	23.20	22.15	9.48	n/a	10.00	n/a
S925T005455	D	Vanadium-ICP-Acid Dil.	ug/ml	101.6	<5.00e-02	< 1.000	<1.00e0	n/a	n/a	n/a	1.000	n/a
S925T005455	D	Zinc-ICP-Acid Dil.	ug/ml	101.8	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S925T005455	D	Zirconium-ICP-Acid Dil.	ug/ml	100.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S925T005455		Fluoride-IC-Dionex 4000/4500	ug/ml	92.88	<1.20e-02	4.476	4.540	4.508	1.33	135.6	1.212	n/a
S925T005455		Chloride-IC-Dionex 4000/4500	ug/ml	104.4	<1.70e-02	1.14e+02	113.0	113.5	0.88	112.5	1.717	n/a
S925T005455		Nitrite-IC - Dionex 4000/4500	ug/ml	98.33	<1.08e-01	7.84e+02	772.0	777.9	1.54	108.3	10.91	n/a
S925T005455		Bromide by Ion Chromatograph	ug/ml	103.1	<1.23e-01	< 12.62	<1.26e1	n/a	n/a	102.2	12.62	n/a
S925T005455		Nitrate by IC-Dionex 4000/4500	ug/ml	103.9	<1.39e-01	4.15e+02	422.0	418.6	1.67	103.0	14.04	n/a
S925T005455		Phosphate-IC-Dionex 4000/4500	ug/ml	104.4	<1.20e-01	5.38e+02	563.0	550.6	4.54	107.2	12.12	n/a
S925T005455		Sulfate by IC-Dionex 4000/4500	ug/ml	104.8	<1.38e-01	2.68e+02	267.0	267.5	0.37	102.5	13.94	n/a
S925T005455		Oxalate by IC-Dionex 4000/4500	ug/ml	102.9	<1.09e-01	56.50	55.00	55.75	2.69	103.6	10.61	n/a
S925T005458		Dose Rate in mrad/hour	mrad/hour	n/a	n/a	35.00	n/a	n/a	n/a	n/a	1.00e-01	n/a
S925T005458		Strontium-89/90 High Level	uCi/ml	106.5	1.00e-03	1.29e-02	1.15e-02	1.22e-02	11.5	n/a	9.45e-05	2.66E+00
S925T005458		Pu-239/240 by TRU-SPEC Resin	uCi/ml	95.30	<3.07e-06	<3.20e-06	<3.48E-6	n/a	n/a	n/a	3.20e-06	7.54E+00
S925T005458		Cobalt-60 by GEA	uCi/ml	94.61	<2.63e-05	<8.14e-05	<7.20e-5	n/a	n/a	n/a	8.14e-05	n/a
S925T005458		Cesium-137 by GEA	uCi/ml	94.16	<7.51e-05	2.270	2.290	2.280	0.88	n/a	n/a	0.190
S925T005458		Am-241 by Extraction	uCi/ml	91.60	<5.90e-06	<6.65e-06	<5.17E-6	n/a	n/a	n/a	6.65e-06	1.00E+02

Table 2. Data Summary Table
AY102 GRAB1

SEGMENT PORTION: Supernate

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S967005365		Dose Rate In mrad/hour	mrad/hour	n/a	n/a	6.50e-02	n/a	n/a	n/a	n/a	1.00e-01	n/a
S967005456		Dose Rate In mrad/hour	mrad/hour	n/a	n/a	30.00	n/a	n/a	n/a	n/a	1.00e-01	n/a
S967005456		DSC Exotherm using Mettler	Joules/g	97.36	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S967005456		DSC Exotherm Dry, calculated	Joules/g Dry	99.16	<42.00	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S967005456		OH- by Pot. Titration	pH	99.22	<42.00	2.49e+03	2.54e+03	2.52e+03	1.99	n/a	250.0	n/a
S967005456		pH Direct	pH	99.22	n/a	13.37	13.37	13.37	0.00	n/a	1.00e-02	n/a
S967005456		Specific Gravity	Sp.G.	98.10	n/a	9.98e-01	9.95e-01	9.96e-01	0.30	n/a	1.00e-03	n/a
S967005456		% Water by TGA using Mettler	%	101.2	n/a	98.07	98.22	98.14	0.15	n/a	n/a	n/a
S967005456		TIC by Acid/ coulometry	ug/mL	90.33	3.00e-01	8.26e+02	851.0	838.5	2.98	n/a	5.000	n/a
S967005456		Tot. Organic Carbon by Coul.	ug/mL	102.4	1.400	98.50	92.40	95.45	6.39	n/a	5.500	n/a
S967005456		Silver-ICP-Acid Dil.	ug/mL	102.4	<1.00e-02	4.38e-01	4.49e-01	4.44e-01	2.48	n/a	2.00e-01	n/a
S967005456		Aluminum-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	14.60	14.90	14.75	2.03	n/a	1.000	n/a
S967005456		Arsenic-ICP-Acid Dil.	ug/mL	106.2	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Boron-ICP-Acid Dil.	ug/mL	102.0	<5.00e-02	1.90	12.40	12.15	4.12	n/a	1.000	n/a
S967005456		Barium-ICP-Acid Dil.	ug/mL	103.2	<5.00e-02	< 1.000	<1.00e0	n/a	n/a	n/a	1.000	n/a
S967005456		Beryllium-ICP-Acid Dil.	ug/mL	106.2	<5.00e-03	< 1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S967005456		Bismuth-ICP-Acid Dil.	ug/mL	104.8	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Calcium-ICP-Acid Dil.	ug/mL	102.2	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Cadmium-ICP-Acid Dil.	ug/mL	103.2	<5.00e-03	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S967005456		Cerium-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Cobalt-ICP-Acid Dil.	ug/mL	101.8	<2.00e-02	<4.00e-01	<4.00e-1	n/a	n/a	n/a	4.00e-01	n/a
S967005456		Chromium-ICP-Acid Dil.	ug/mL	104.0	<1.00e-02	19.60	19.60	19.60	0.00	n/a	2.00e-01	n/a
S967005456		Copper-ICP-Acid Dil.	ug/mL	106.0	<1.00e-02	<2.00e-01	2.00e-01	n/a	n/a	n/a	2.00e-01	n/a
S967005456		Iron-ICP-Acid Dil.	ug/mL	103.4	<5.00e-02	< 1.000	<1.00e0	n/a	n/a	n/a	1.000	n/a
S967005456		Potassium-ICP-Acid Dil.	ug/mL	100.4	<5.00e-01	3.04e+02	310.0	307.0	1.95	n/a	10.00	n/a
S967005456		Lanthanum-ICP-Acid Dil.	ug/mL	105.0	<5.00e-02	< 1.000	<1.00e0	n/a	n/a	n/a	1.000	n/a
S967005456		Lithium-ICP-Acid Dil.	ug/mL	105.2	<1.00e-02	8.61e-01	8.64e-01	8.63e-01	0.35	n/a	2.00e-01	n/a
S967005456		Magnesium-ICP-Acid Dil.	ug/mL	99.80	<1.00e-02	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Manganese-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S967005456		Molybdenum-ICP-Acid Dil.	ug/mL	101.2	<5.00e-02	< 1.000	<1.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Sodium-ICP-Acid Dil.	ug/mL	104.8	<1.00e-01	6.13e+03	6.43e+03	6.28e+03	4.78	n/a	2.000	n/a
S967005456		Neodymium-ICP-Acid Dil.	ug/mL	103.4	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	4.00e-01	n/a
S967005456		Nickel-ICP-Acid Dil.	ug/mL	103.2	<2.00e-02	1.79e+02	185.0	182.0	3.30	n/a	2.000	n/a
S967005456		Phosphorus-ICP-Acid Dil.	ug/mL	102.8	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Sulfur-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 2.000	<1.20e0	91.85	0.54	n/a	2.000	n/a
S967005456		Selenium-ICP-Acid Dil.	ug/mL	97.00	<6.00e-02	< 1.200	<1.20e0	3.295	12.4	n/a	2.000	n/a
S967005456		Antimony-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	3.500	3.090	3.295	0.21	n/a	1.000	n/a
S967005456		Silicon-ICP-Acid Dil.	ug/mL	98.00	<5.00e-02	94.50	94.70	94.60	0.21	n/a	2.000	n/a
S967005456		Strontium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 2.000	<2.00e0	n/a	n/a	n/a	2.000	n/a
S967005456		Titanium-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S967005456		Thallium-ICP-Acid Dil.	ug/mL	100.2	<2.00e-01	< 4.000	<4.00e0	n/a	n/a	n/a	4.000	n/a

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S961005456	D	Uranium-ICP-Acid Dil.	ug/mL	97.80	<5.00e-01	23.90	21.80	22.85	9.19	n/a	10.00	n/a
S961005456	D	Vanadium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-02	< 1.000	<1.00e-1	n/a	n/a	n/a	1.000	n/a
S961005456	D	Zinc-ICP-Acid Dil.	ug/mL	101.8	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S961005456	D	Zirconium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S961005456		Fluoride-IC-Dionex 4000/4500	ug/mL	92.88	<1.20e-02	4.383	4.120	4.252	6.12	n/a	1.212	n/a
S961005456		Chloride-IC-Dionex 4000/4500	ug/mL	104.4	<1.70e-02	1.16e+02	118.0	116.8	1.71	n/a	1.717	n/a
S961005456		Nitrite-IC - Dionex 4000/4500	ug/mL	98.33	<1.08e-01	7.96e+02	793.0	794.6	0.38	n/a	10.91	n/a
S961005456		Bromide by Ion Chromatograph	ug/mL	103.1	<1.25e-01	< 12.62	<1.26e1	n/a	n/a	n/a	12.62	n/a
S961005456		Nitrate by IC-Dionex 4000/4500	ug/mL	103.9	<1.39e-01	4.31e+02	424.0	427.6	1.64	n/a	14.04	n/a
S961005456		Phosphate-IC-Dionex 4000/4500	ug/mL	104.4	<1.20e-01	5.37e+02	581.0	559.0	7.87	n/a	12.12	n/a
S961005456		Sulfate by IC-Dionex 4000/4500	ug/mL	104.8	<1.38e-01	2.76e+02	267.0	271.4	3.31	n/a	13.94	n/a
S961005456		Oxalate by IC-Dionex 4000/4500	ug/mL	102.9	<1.05e-01	59.52	58.90	59.21	1.01	n/a	10.61	n/a
S961005459		Dose Rate in mrad/hour	mrad/hour	n/a	n/a	30.00	n/a	n/a	n/a	n/a	1.00e-01	n/a
S961005459		Strontium-89/90 High Level	uCi/mL	106.5	1.00e-03	1.55e-02	1.50e-02	1.52e-02	3.28	n/a	9.26e-05	2.39e+00
S961005459		Pu-239/240 by TRU-SPEC Resin	uCi/mL	95.30	<3.07e-06	7.88e-06	7.98e-06	7.93e-06	1.26	n/a	5.45e-06	5.03e+00
S961005459		Cobalt-60 by GEA	uCi/mL	94.61	<2.63e-05	<7.01e-05	<8.72e-5	n/a	n/a	n/a	7.01e-05	n/a
S961005459		Cesium-137 by GEA	uCi/mL	94.16	<7.51e-05	1.950	2.300	2.125	16.5	n/a	n/a	0.200
S961005459		Am-241 by Extraction	uCi/mL	91.60	<5.90e-06	<6.61e-06	<6.17E-6	n/a	n/a	n/a	6.61e-06	1.00E+02

HNF-SD-WM-DP-222, REV. 0

WASTE COMPATIBILITY CORROSION RULES

HNF-SD-WM-DP-222, REV. 0

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TABLE 3. WASTE COMPATIBILITY CORROSION RULES

Sample ID	Analyte	Result (ug/mL)	Result (M)	Is {NO3} < 1.0 M?	Is {OH} < 0.010 M <= {OH} < 5.0 M?	Is {NO2} < 0.011 M <= {NO2} < 5.5 M?	Is {OH} > {NO2}?
S961005368	NO3	3.98E+02	0.006	YES	YES	YES	
	OH	2.47E+03	0.145				
	NO2	7.59E+02	0.017				

Sample ID	Analyte	Result (ug/mL)	Result (M)	Is {NO3} < 1.0 M?	Is {OH} < 0.010 M <= {OH} < 5.0 M?	Is {NO2} < 0.011 M <= {NO2} < 5.5 M?	Is {OH} > {NO2}?
S961005454	NO3	4.13E+02	0.007	YES	YES	YES	
	OH	2.54E+03	0.149				
	NO2	7.85E+02	0.017				

Sample ID	Analyte	Result (ug/mL)	Result (M)	Is {NO3} < 1.0 M?	Is {OH} < 0.010 M <= {OH} < 5.0 M?	Is {NO2} < 0.011 M <= {NO2} < 5.5 M?	Is {OH} > {NO2}?
S961005465	NO3	4.15E+02	0.007	YES	YES	YES	
	OH	2.50E+03	0.147				
	NO2	7.84E+02	0.017				

Sample ID	Analyte	Result (ug/mL)	Result (M)	Is {NO3} < 1.0 M?	Is {OH} < 0.010 M <= {OH} < 5.0 M?	Is {NO2} < 0.011 M <= {NO2} < 5.5 M?	Is {OH} > {NO2}?
S961005468	NO3	4.31E+02	0.007	YES	YES	YES	
	OH	2.49E+03	0.146				
	NO2	7.96E+02	0.017				

HNF-SD-WM-DP-222, REV. 0

CHAIN OF CUSTODY FORMS

HNF-SD-WM-DP-222, REV. 0

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CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

Shipment Number <u>200E-08-77F</u>	Sample Number <u>15D</u>	Supervisor <u>R.J. PRYZNICK</u>												
Tank <u>AY102</u>	Riser <u>15D</u>	Cask/PIG Shipping Container Serial Number <u>6003E/G-1</u>												
Radiation Survey Data For Cask/PIG: <table border="1"> <tr> <th>(7) FIELD</th> <th>(31) LABORATORY</th> </tr> <tr> <td>Over Top Dose Rate <u>< .5 mR/hr</u></td> <td><u>L.O.S. mR/HK</u></td> </tr> <tr> <td>Side Dose Rate <u>< .5 mR/hr</u></td> <td><u>L.O.S.</u></td> </tr> <tr> <td>Bottom Dose Rate <u>< .5 mR/hr</u></td> <td><u>L.O.S.</u></td> </tr> <tr> <td>Measurable Contamination <u>< 20 dpm/100cm²</u> (Alpha)</td> <td><u>LDET/LAW</u> (Alpha)</td> </tr> <tr> <td><u>< 1000 dpm/100cm²</u> (Beta-Gamma)</td> <td><u>LDET/LAW</u> (Beta-Gamma)</td> </tr> </table>			(7) FIELD	(31) LABORATORY	Over Top Dose Rate <u>< .5 mR/hr</u>	<u>L.O.S. mR/HK</u>	Side Dose Rate <u>< .5 mR/hr</u>	<u>L.O.S.</u>	Bottom Dose Rate <u>< .5 mR/hr</u>	<u>L.O.S.</u>	Measurable Contamination <u>< 20 dpm/100cm²</u> (Alpha)	<u>LDET/LAW</u> (Alpha)	<u>< 1000 dpm/100cm²</u> (Beta-Gamma)	<u>LDET/LAW</u> (Beta-Gamma)
(7) FIELD	(31) LABORATORY													
Over Top Dose Rate <u>< .5 mR/hr</u>	<u>L.O.S. mR/HK</u>													
Side Dose Rate <u>< .5 mR/hr</u>	<u>L.O.S.</u>													
Bottom Dose Rate <u>< .5 mR/hr</u>	<u>L.O.S.</u>													
Measurable Contamination <u>< 20 dpm/100cm²</u> (Alpha)	<u>LDET/LAW</u> (Alpha)													
<u>< 1000 dpm/100cm²</u> (Beta-Gamma)	<u>LDET/LAW</u> (Beta-Gamma)													
ACT <u>[Signature]</u>	RCR <u>[Signature]</u>													

INFORMATION (Include statement of laboratory tests to be performed.)

HNF-SD-WM-DP-222, REV. C

3) Field Comments		(32) Laboratory Comments	
(1) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date (Day)
222-5	222-5	James Sickles	12-8-96
(15) Reinquished By (Sign and PRINT)	(16) Reinquished By (Sign and PRINT)	(17) Received By (Sign and PRINT)	(18) Date (Day)
James Sickles	James Sickles	Shelley Covey	10-8-96
(19) Reinquished By (Sign and PRINT)	(20) Reinquished By (Sign and PRINT)	(21) Received By (Sign and PRINT)	(22) Date (Day)
Shelley Covey	Shelley Covey	Shelley Covey	10-8-96
(23) Reinquished By (Sign and PRINT)	(24) Reinquished By (Sign and PRINT)	(25) Received By (Sign and PRINT)	(26) Date (Day)
Shelley Covey	Shelley Covey	Shelley Covey	10-8-96
(27) Reinquished By (Sign and PRINT)	(28) Reinquished By (Sign and PRINT)	(29) Received By (Sign and PRINT)	(30) Date (Day)
Shelley Covey	Shelley Covey	Shelley Covey	10-8-96
(31) Seal Intact Upon Release?	(32) Seal Intact Upon Receipt?	(33) Seal Data Consistent with this Record?	(34) Seal No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
3) Field Comments		(32) Laboratory Comments	

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldenrod - Tank Farm Operations.

AC-6001-326 (01/96)

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

1) Shipment Number 200E-08-TF (2) Sample Number 24V-96-16 (3) Supervisor R.J. Ranzuk
 1) Tank AU102 (5) Riser 1SD (6) Cask/PIG Shipping Container Serial Number 6003A/TF4

(7) FIELD		(31) LABORATORY		(8) Shipment Description	
Irradiation Survey Data For Cask/PIG:				A. Work Package Number	<u>ES-96-00487/0</u>
Over Top Dose Rate	<u>5.5 mR/hr</u>	<u>LO.5</u>		B. Cask/PIG Seal Number	<u>2003</u>
Side Dose Rate	<u>5.5 mR/hr</u>	<u>LO.5</u>		C. Date and Time Sample	<u>10/8/96 / 10:56</u>
Bottom Dose Rate	<u>5.5 mR/hr</u>	<u>LO.5</u>		Removed from Tank	<u>1008</u>
Signifiable Contamination	<u><20 dpm/100cm²</u> (Alpha)	<u>LO.5</u>		D. Expected Liquid Content	<u>0g</u>
	<u><1000 dpm/100cm²</u> (Beta-Gamma)	<u>LO.5</u>		E. Expected Solid Content	<u>50 mR/hr</u>
RCF*	<u>None</u>	<u>LO.5</u>		F. Dose Rate Through Drill String (Auger/On Contact (GRAB))	<u>125 ml</u>
RCF*	<u>None</u>	<u>LO.5</u>		G. Expected Sample Length (Auger/Volume (GRAB))	

1) INFORMATION (Include statement of laboratory tests to be performed.)

INF-SD-WM-DP-222, REV. 0

31

(9) Field Comments		(32) Laboratory Comments	
1) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time
<u>WDR-41SD</u>	<u>222-3</u>	<u>James Sickett</u>	<u>10-8-96</u>
2) Relinquished By (Sign and PRINT)	(15) Received By (Sign and PRINT)	(16) Receiver Comments	(17) Date/Time
<u>James Sickett</u>	<u>Shelley Covey</u>		<u>10-8-96</u>
3) Relinquished By (Sign and PRINT)	(16) Received By (Sign and PRINT)	(18) Receiver Comments	(19) Date/Time
<u>Shelley Covey</u>	<u>James Sickett</u>		<u>10-8-96</u>
4) Relinquished By (Sign and PRINT)	(17) Received By (Sign and PRINT)	(20) Receiver Comments	(21) Date/Time
5) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(22) Receiver Comments	(23) Date/Time

(16) Seal Intact Upon Release? (22) Seal Intact Upon Receipt? (30) Seal Data Consistent with this Record?

Yes ☒ No ☐	Yes ☒ No ☐	Seal No. ☒ Yes ☐ No ☐	Sample No. ☒ Yes ☐ No ☐
---	---	---	---

STRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldenrod - Tank Farm Operations, BC-6001-326 (01/96)

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

1) Shipment Number 200E-08-7F (2) Sample Number 244-96-17 (3) Supervisor R.J. PRZEMIL

4) Tank 44102 (5) Riser 15D (6) Cast/Pig Shipping Container Serial Number 6003D 1B25

Validation Survey Date For Cast/Pig:

(7) FIELD

(31) LABORATORY

(8) Shipment Description

Over Top Dose Rate

4.5 m/c/hr

10.5 m/c/hr

A. Work Package Number

ES-96-00487/0

Side Dose Rate

4.5 m/c/hr

10.5

B. Cast/Pig Seal Number

2007

Bottom Dose Rate

4.5 m/c/hr

10.5

C. Date and Time Sample

10-8-96 / 1107

Seizable Contamination

< 2000 cpm/sec

LOA/LOA

D. Expected Liquid Content

100%

Seizable Contamination

< 1000 cpm/sec

LOA/LOA

E. Expected Solid Content

0%

Seizable Contamination

< 1000 cpm/sec

LOA/LOA

F. Dose Rate Through Drill String

200 m/c/hr

Seizable Contamination

< 1000 cpm/sec

LOA/LOA

G. Expected Sample Length (Auger)

1.35 m

Seizable Contamination

< 1000 cpm/sec

LOA/LOA

H. Expected Sample Length (Auger)

1.35 m

1) INFORMATION (include statement of laboratory tests to be performed.)

32

7) Field Comments

(32) Laboratory Comments

HN1SD-WM-DP-22, REV. 0

(1) Point of Origin <u>44102 2/15/92</u>	(12) Destination <u>232-S</u>	(13) Gender Name (Sign and PRINT) <u>James Skeels</u>	(14) Date <u>10-8-96</u>	(15) Sender Comments
(4) Inaugurated By (Sign and PRINT) <u>James Skeels</u>	(16) Received By (Sign and PRINT) <u>James Skeels</u>	(17) Date/Time <u>10-8-96</u>	(18) Date/Time <u>10-8-96</u>	(20) Receiver Comments
(5) Inaugurated By (Sign and PRINT) <u>James Skeels</u>	(19) Received By (Sign and PRINT) <u>James Skeels</u>	(21) Date/Time <u>10-8-96</u>	(22) Date/Time <u>10-8-96</u>	(24) Receiver Comments
(6) Inaugurated By (Sign and PRINT) <u>James Skeels</u>	(23) Received By (Sign and PRINT) <u>James Skeels</u>	(25) Date/Time <u>10-8-96</u>	(26) Date/Time <u>10-8-96</u>	(28) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	Shipment No.	Seal No.	Sample No.
☒ Yes	☒ Yes	☒ Yes	☒ Yes	☒ Yes
☐ No	☐ No	☐ No	☐ No	☐ No

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

Shipment Number 2006-08-TT (2) Sample Number 2AY-96-18 (3) Supervisor R.J. Penznick
 Tank A4102 (5) Riser 1SD (6) Cask/PIG Shipping Container Serial Number 60033 B / 1P-8

(7) FIELD		(31) LABORATORY		(8) Shipment Description	
Mutation Survey Data For Cask/PIG:				A. Work Package Number	<u>ES-96-00487/0</u>
Over Top Dose Rate	<u>4.5 mcl/hr</u>	<u>LO.5 mcl/hr</u>		B. Cask/PIG Seal Number	<u>2005</u>
Side Dose Rate	<u>4.5 mcl/hr</u>	<u>LO.5</u>		C. Date and Time Sample	<u>10.8.96 / 150 ml</u>
Bottom Dose Rate	<u>4.5 mcl/hr</u>	<u>LO.5</u>		D. Expected Liquid Content	<u>100%</u>
Smearable Contamination	<u>220 dpm/100cm²</u> (Alpha)	<u>1 det / 100cm²</u> (Alpha)		E. Expected Solid Content	<u>0%</u>
	<u>11000 dpm/100cm²</u> (Beta-Gamma)	<u>1 det / 100cm²</u> (Beta-Gamma)		F. Dose Rate Through DRI Sealing (Auger/IG Contact (CPAD))	<u>150 mcl/hr</u>
PICT*	<u>Doug Ziegler</u> (Signature)	RCT*	<u>C. B. Bell</u> (Signature)	G. Expected Sample Length (Auger)/ Volume (GRAB)	<u>125 ml</u>

INFORMATION (include statement of laboratory tests to be performed.)

33

(32) Laboratory Comments		(30) Seal Data Consistent with this Record?	
(1) Point of Origin	(12) Destination	(16) Seal Intact Upon Receipt?	(20) Seal Intact Upon Receipt?
<u>A4102 R/1SD</u>	<u>222-5</u>	☒ Yes ☐ No	☒ Yes ☐ No
(7) Reinquished By (Sign and PRINT)	(13) Spicker Name (Sign and PRINT)	Shipment No. ☒ Yes ☐ No	
<u>Douglas Dickel James Sicket</u>	<u>Douglas Dickel James Sicket</u>	Sample No. ☒ Yes ☐ No	
(1) Reinquished By (Sign and PRINT)	(14) Date/Time		
<u>Douglas Dickel James Sicket</u>	<u>10-8-96</u>		
(7) Reinquished By (Sign and PRINT)	(15) Sender Comments		
<u>Douglas Dickel James Sicket</u>			
(7) Reinquished By (Sign and PRINT)	(16) Receiver Comments		
<u>Douglas Dickel James Sicket</u>			
(7) Reinquished By (Sign and PRINT)	(17) Date/Time		
<u>Douglas Dickel James Sicket</u>	<u>10-8-96</u>		
(7) Reinquished By (Sign and PRINT)	(18) Date/Time		
<u>Douglas Dickel James Sicket</u>	<u>10-8-96</u>		

HNF-SD-WM-DP-222, REV. 0

INORGANIC ANALYSIS

HNF-SD-WM-DP-222, REV. 0

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LABCORE Data Entry Template for Worklist# 14073

Analyst: EL Instrument: DSC0 1 Book # 12A/4B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: AY-102 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	28.45	27.1 *	N/A	Joules/g
96001366	AY-102 GRAB	2 SAMPLE	S96T005366	0	DSC-01	LIQUID	N/A	Ø		Joules/g
96001366	AY-102 GRAB	3 DUP	S96T005366	0	DSC-01	LIQUID	Ø	Ø	N/A	Joules/g
96001366	AY-102 GRAB	4 SAMPLE	S96T005454	0	DSC-01	LIQUID	N/A	Ø		Joules/g
96001366	AY-102 GRAB	5 DUP	S96T005454	0	DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 14073

A. Lambel 10.22.96
Analyst Signature Date

Linda Mock 10-24-96
Analyst Signature Date ^{lem}

Verified/Validated by
Blandina Valenzuela 10.30.96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 14073 WL Comment AY-102 DSC, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-01	LIQUI	STD	28.45	27.1	95.2548	NEW	10/24/96 1908	lc
DSC-01	LIQUI	DUP	0	0	0.0000	NEW	10/24/96 1908	lc
DSC-01	LIQUI	DUP	0	0	0.0000	NEW	10/24/96 1908	lc

Save (F12) End (F3)

DSC-01 standard needed to be changed to
 a text entry.

10-30-96

Blandino
 Valenzuela

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 14073 WL Comment AY-102 DSC, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-01	LIQUI	STD	28.45	27.1*	95.2548	TEXT	10/24/96 1908	lc
DSC-01	LIQUI	DUP	0	0	0.0000	NEW	10/24/96 1908	lc
DSC-01	LIQUI	DUP	0	0	0.0000	NEW	10/24/96 1908	lc

Save (F12) End (F3)

DSC-01 standard was changed to a text
 10-30-96
 Blandina
 Valenzuela

FIGURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 32 TO 43
21st Nov 96
P. L. L. 10-22-96

DSC STD 12N14B N2

34.640 mg

Rate: 10.0 °C/min

File: 00069.001

DSC METTLER

20-Oct-96

Ident: 0.0 222-S Laboratory

EXO

Integration

Delta H 937 mJ

27.1 J/g

Peak

158.1 °C

-47.9 mW

20. mW

120.

130.

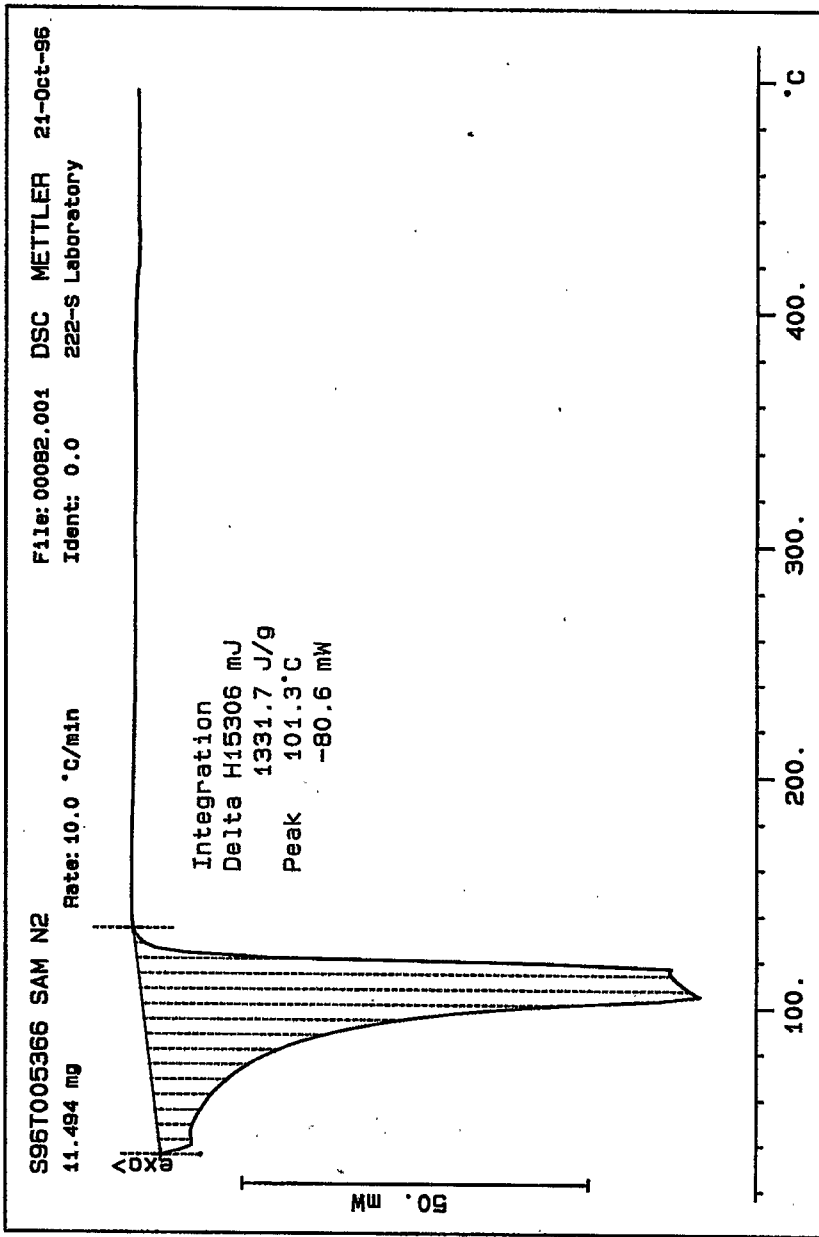
140.

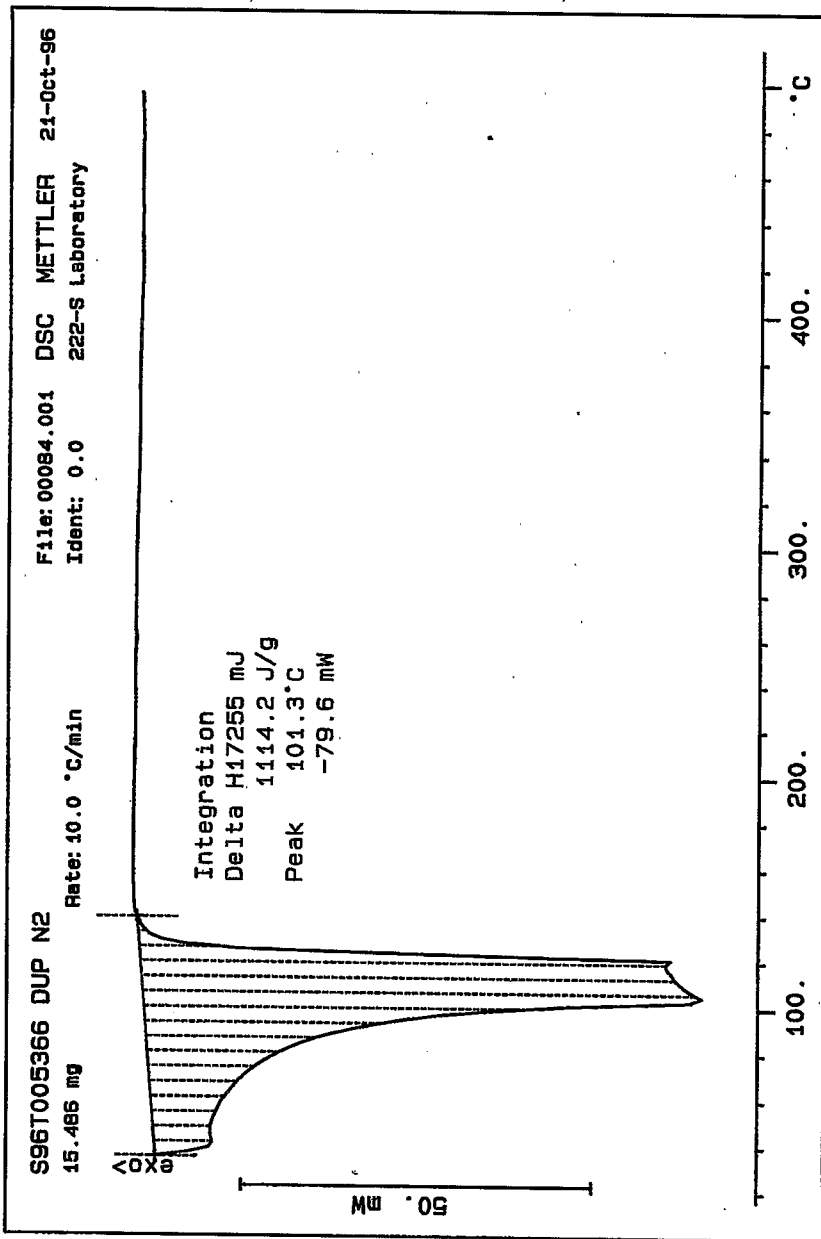
150.

160.

170.

°C





S96T005454 SAM N2

14.982 mg

Rate: 10.0 °C/min

File: 00086.001 DSC METTLER 21-Oct-96

Ident: 0.0 222-S Laboratory

exo >

Integration
Delta H17032 mJ
1136.8 J/g
Peak 101.3°C
-80.3 mW

50. mW

100.

200.

300.

400.

°C

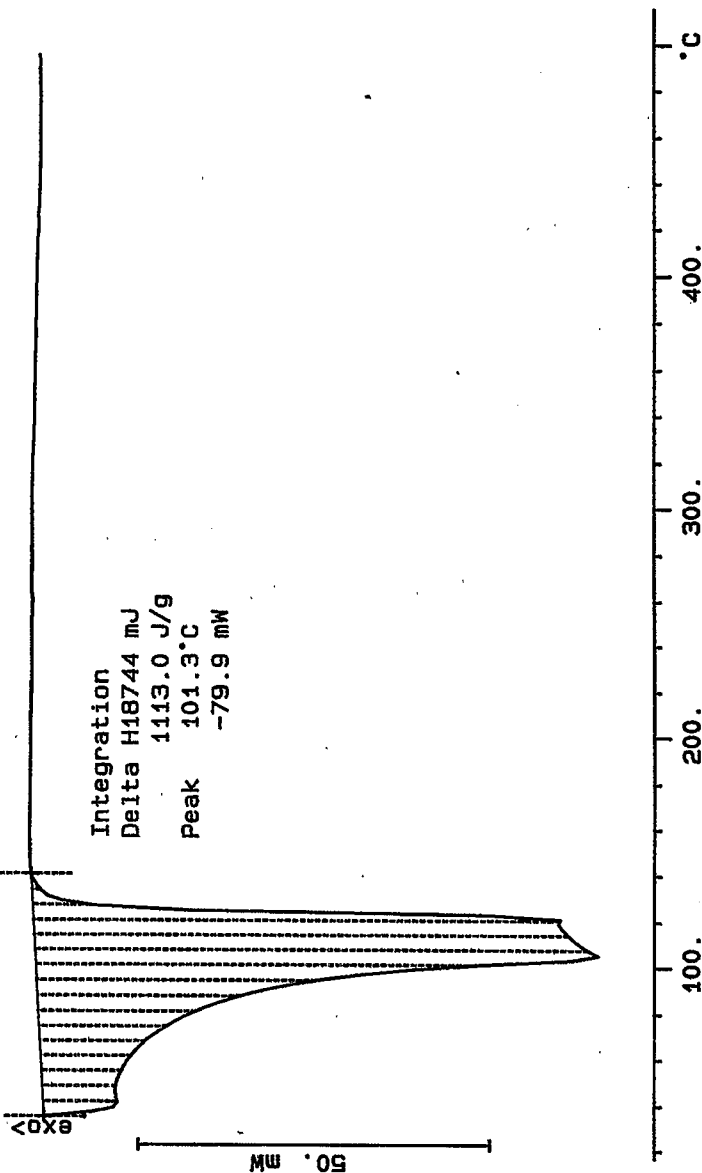
S96T005454 DUP N2

16.841 mg

Rate: 10.0 °C/min

File: 00088.001 DSC METTLER 21-Oct-96

Ident: 0.0 222-S Laboratory



LABCORE Data Entry Template for Worklist# 14074

Analyst: JS

Instrument: DSC0 1

Book # 12N148

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: AY-102 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	28.45	27.7	N/A	Joules/g
96001366	AY-102 GRAB	2 SAMPLE	S96T005455	0	DSC-01	LIQUID	N/A	Ø		Joules/g
96001366	AY-102 GRAB	3 DUP	S96T005455	0	DSC-01	LIQUID	Ø	Ø	N/A	Joules/g
96001366	AY-102 GRAB	4 SAMPLE	S96T005456	0	DSC-01	LIQUID	N/A	Ø		Joules/g
96001366	AY-102 GRAB	5 DUP	S96T005456	0	DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 14074

JSK 10-21-96
Analyst Signature Date

Jim Mark 10-24-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 10-30-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
R = Replicate Number, A = Aliquot Code.

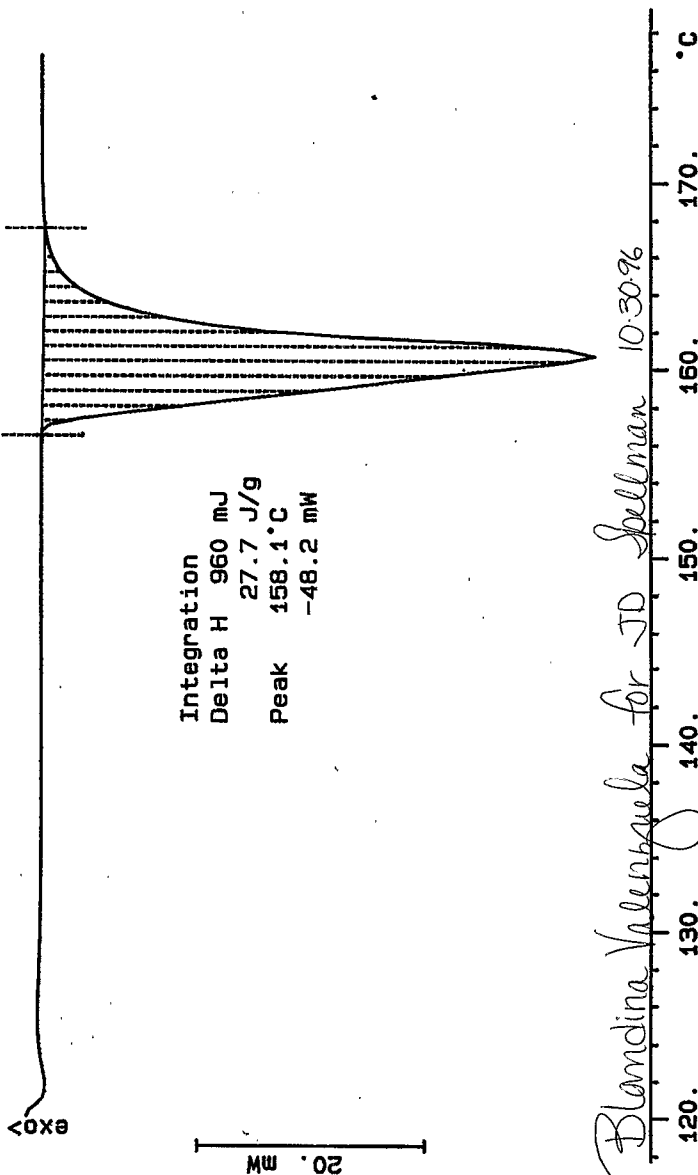
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 45 TO 49.

CHEMIST THAT REPRESENTS THE CALIBRATION/ANALYSIS ON PAGES 45 TO 49
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 45 TO 49 TO 49.

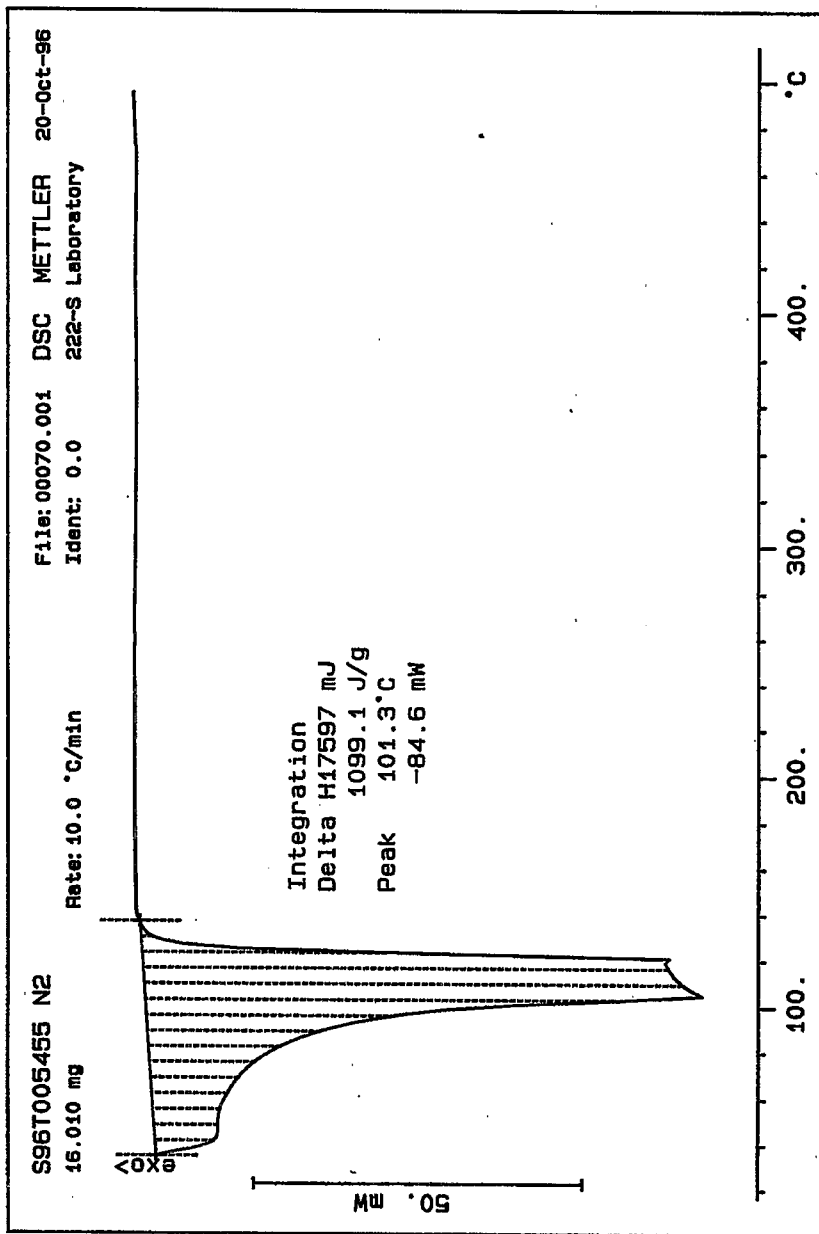
DSC STD 12N14B N2
 34.640 mg

Rate: 10.0 °C/min

File: 00069.001 DSC METTLER 20-Oct-96
 Ident: 0.0 222-S Laboratory



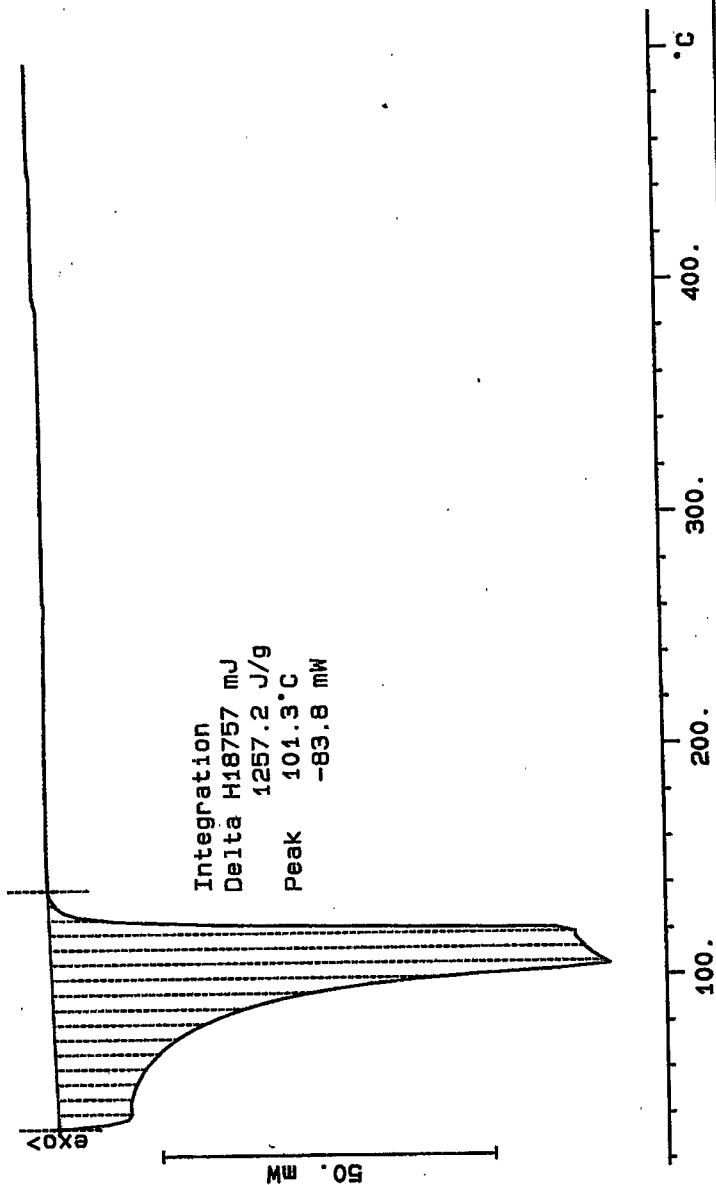
Blandina Valenzuela for JD Spellman 10.30.96

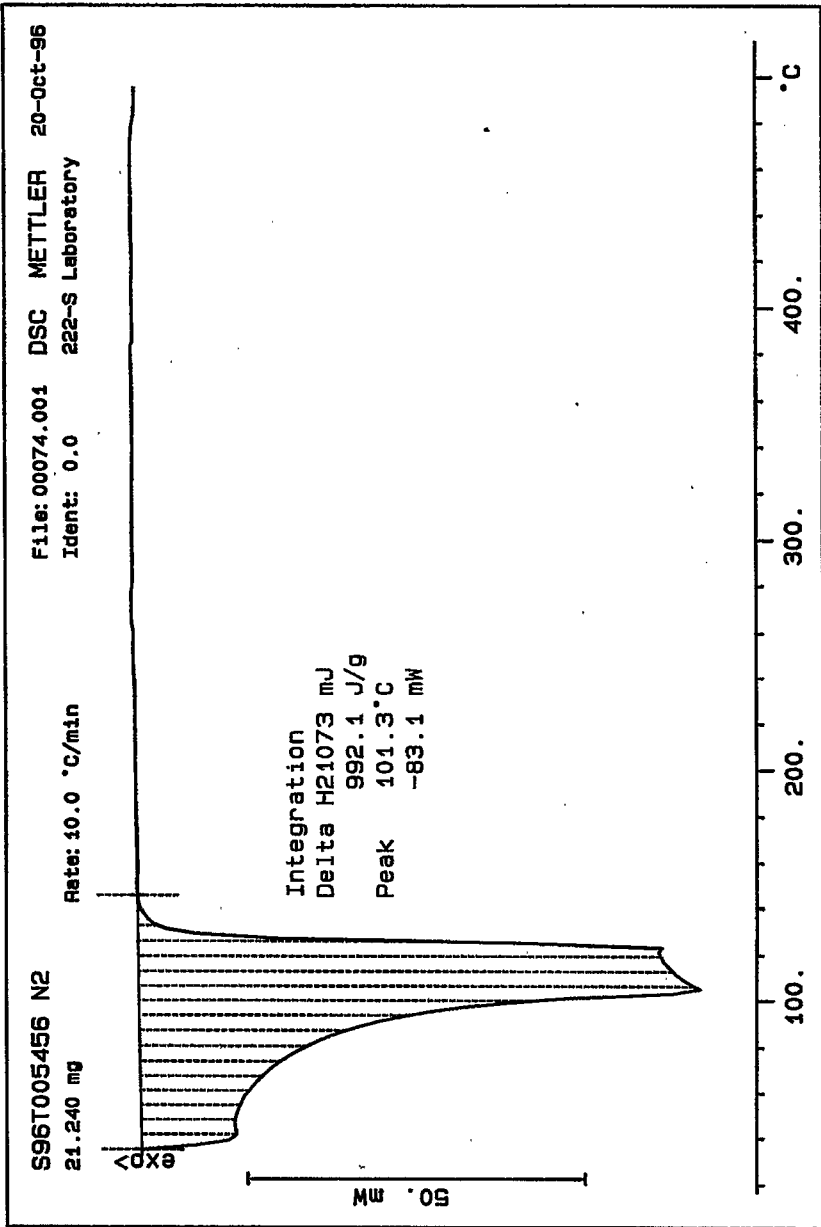


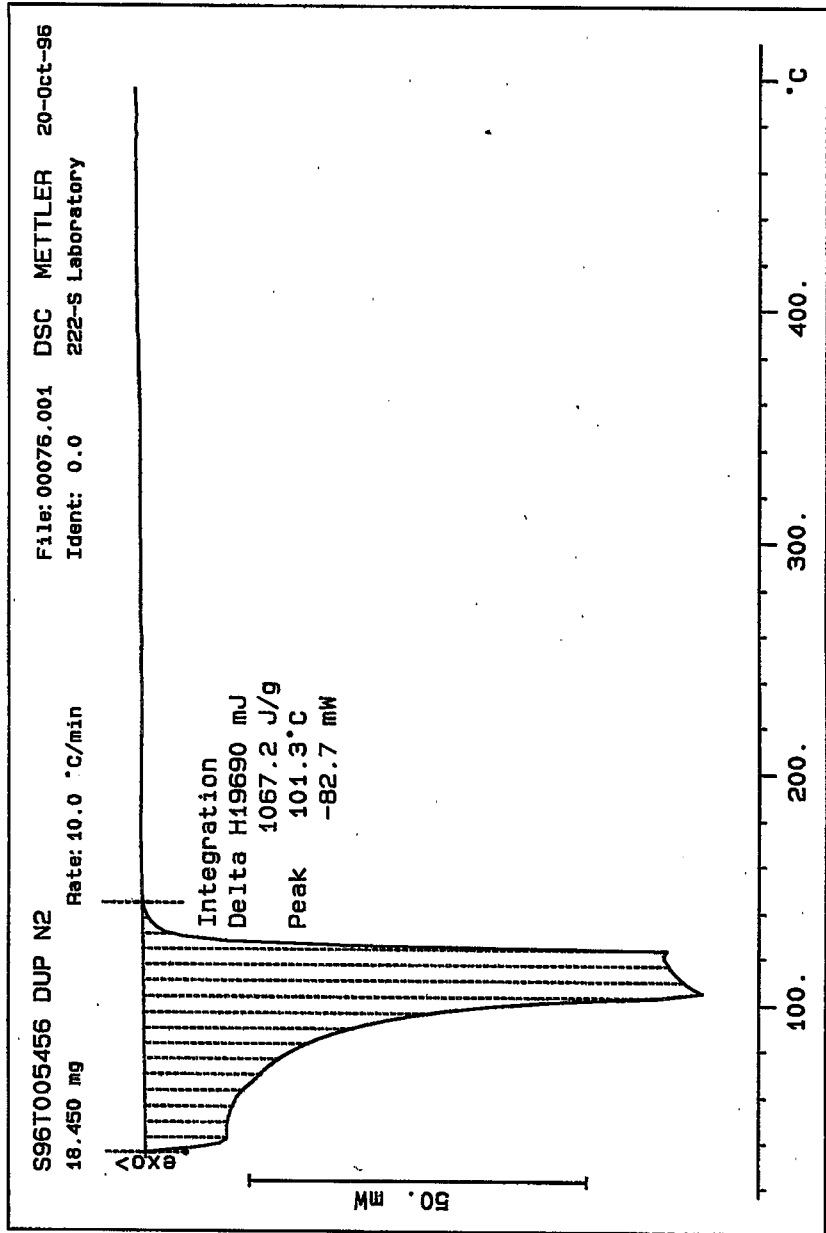
File: 00072.001 DSC METTLER 20-Oct-96
Ident: 0.0 222-S Laboratory

S96T005455 DUP N2
14.920 mg

Rate: 10.0 °C/min







LABCORE Data Entry Template for Worklist# 14912

Analyst: BDV Instrument: DSC01 Book #

Method: LA-514-113 Rev/Mod

Worklist Comment: Dry DSC for AY-102. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001366	AY-102 GRAB	1 SAMPLE	S96T005366	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96001366	AY-102 GRAB	2 DUP	S96T005366	0	DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry
96001366	AY-102 GRAB	3 SAMPLE	S96T005454	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96001366	AY-102 GRAB	4 DUP	S96T005454	0	DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry
96001366	AY-102 GRAB	5 SAMPLE	S96T005455	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96001366	AY-102 GRAB	6 DUP	S96T005455	0	DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry
96001366	AY-102 GRAB	7 SAMPLE	S96T005456	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96001366	AY-102 GRAB	8 DUP	S96T005456	0	DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry

Final page for worklist # 14912

Blandina Valenzuela 12-2-96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 14071

Analyst: AM Instrument: TGA0 1 Book # 82N84

Method: LA-560-112 Rev/Mod C-0

Worklist Comment: AY-102 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.2</u>	<u>59.79*</u>	<u>N/A</u>	%
96001366	AY-102 GRAB	2 SAMPLE	S96T005366	0	TGA-01	LIQUID	<u>N/A</u>	<u>98.11</u>		%
96001366	AY-102 GRAB	3 DUP	S96T005366	0	TGA-01	LIQUID	<u>98.11</u>	<u>97.94</u>	<u>N/A</u>	%
96001366	AY-102 GRAB	4 SAMPLE	S96T005454	0	TGA-01	LIQUID	<u>N/A</u>	<u>98.04</u>		%
96001366	AY-102 GRAB	5 DUP	S96T005454	0	TGA-01	LIQUID	<u>98.04</u>	<u>98.22</u>	<u>N/A</u>	%

Final page for worklist # 14071

A. Lambel 10-22-96
Analyst Signature Date

Frank Mark 10-25-96 ven
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 10-30-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 14071 WL Comment AY-102 TGA, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	LIQUI	STD	5.92e01	59.79	100.9966	NEW	10/24/96 1903	lc
TGA-01	LIQUI	DUP	98.11	97.94	0.1734	NEW	10/24/96 1903	lc
TGA-01	LIQUI	DUP	98.04	98.22	0.1834	NEW	10/24/96 1903	lc

Save (F12) End (F3)

TGA-01 standard needed to be changed
 to a text entry.

10-30-96

Blandina

Valenzuela

[illegible]

TGA-01 standard was changed to a text entry.

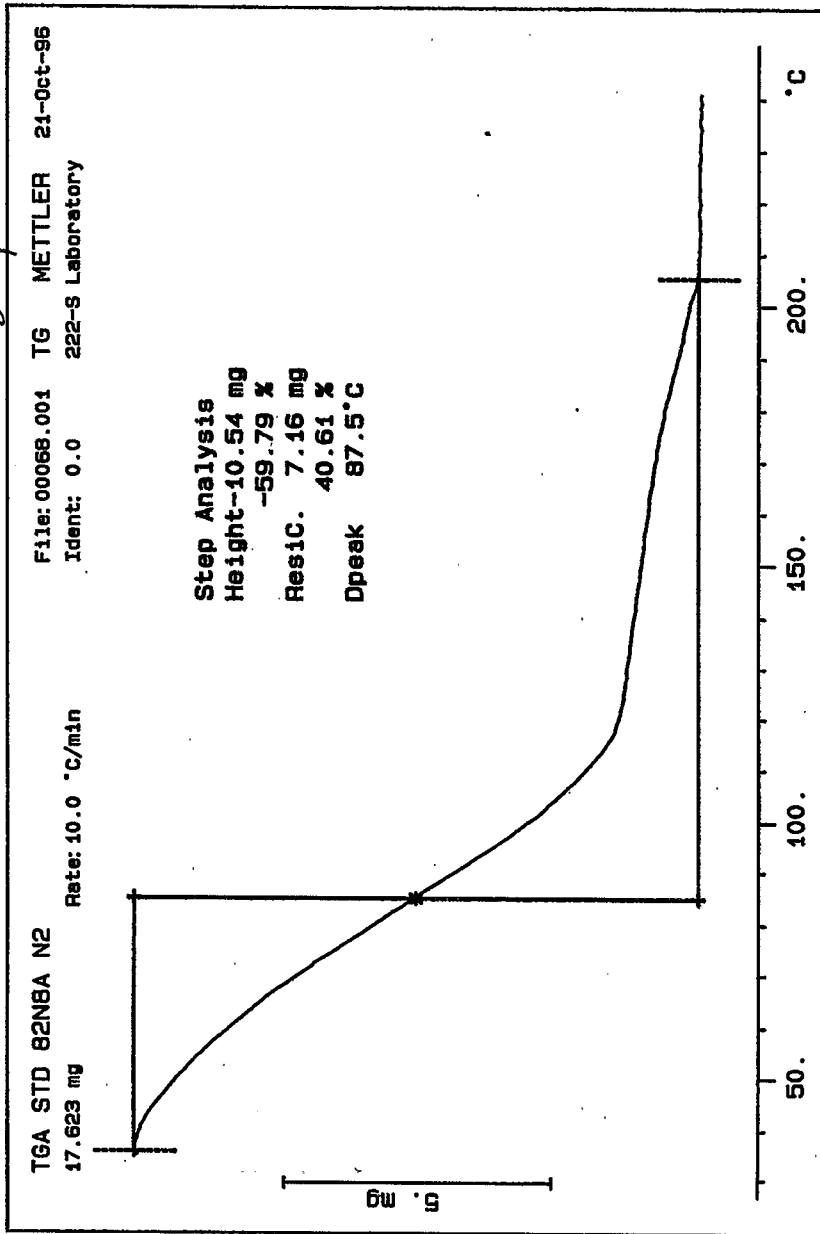
10.30.96

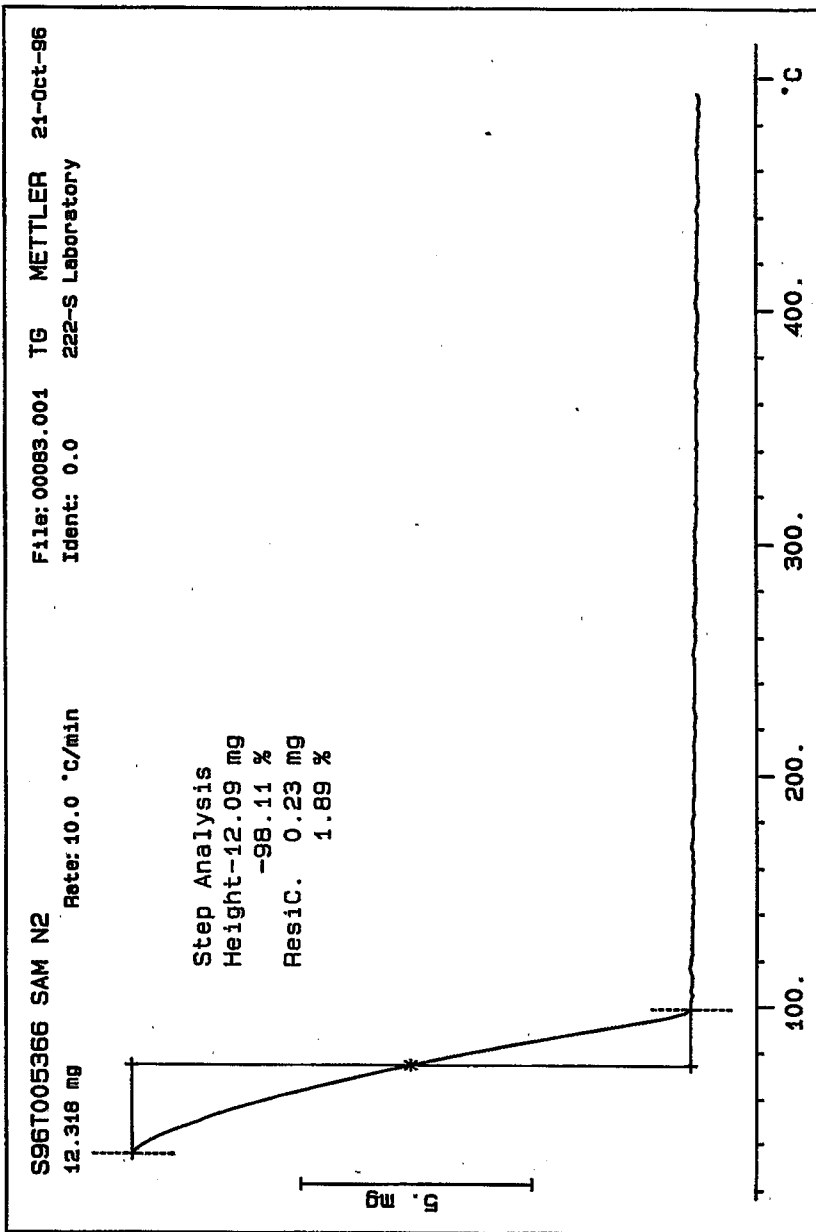
Blandina

Valenzuela

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 54 TO 58.

A. Lambert 10-21-96





S96T005366 DUP N2

15.597 mg

Rate: 10.0 °C/min

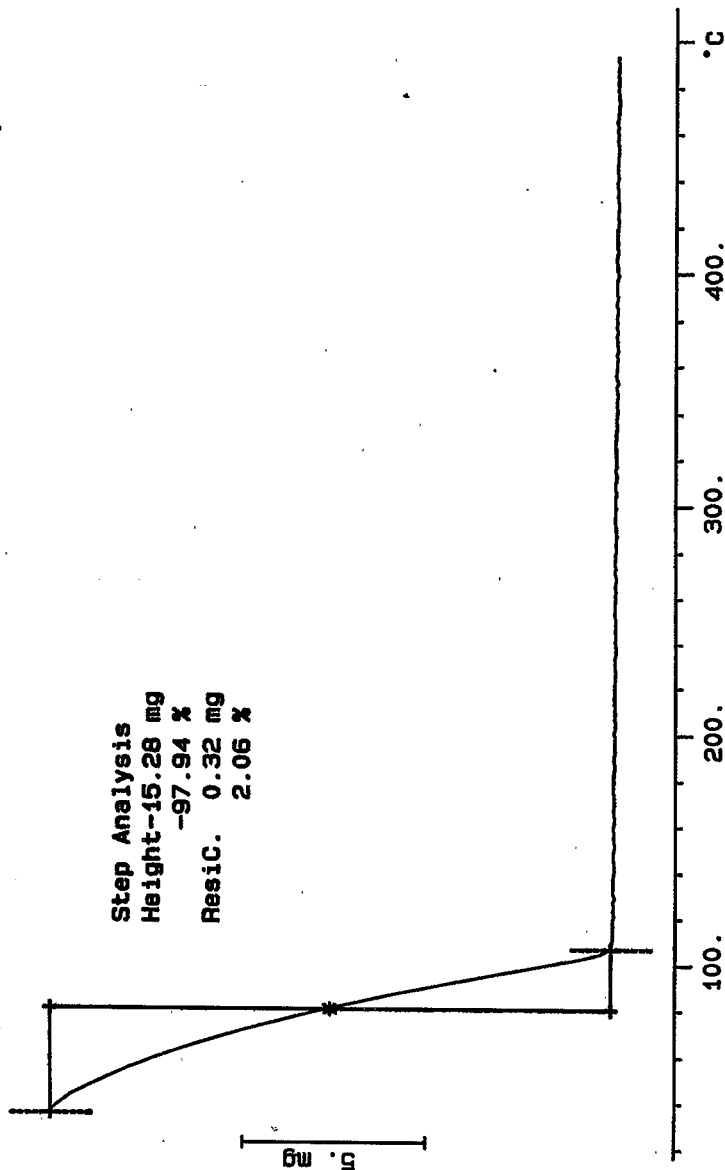
File: 00085.001 TG

METTLER

22-Oct-96

Ident: 0.0 222-S Laboratory

Step Analysis
Height-15.28 mg
-97.94 %
Resid. 0.32 mg
2.06 %



S96T005454 SAM N2

16.271 mg

Rate: 10.0 °C/min

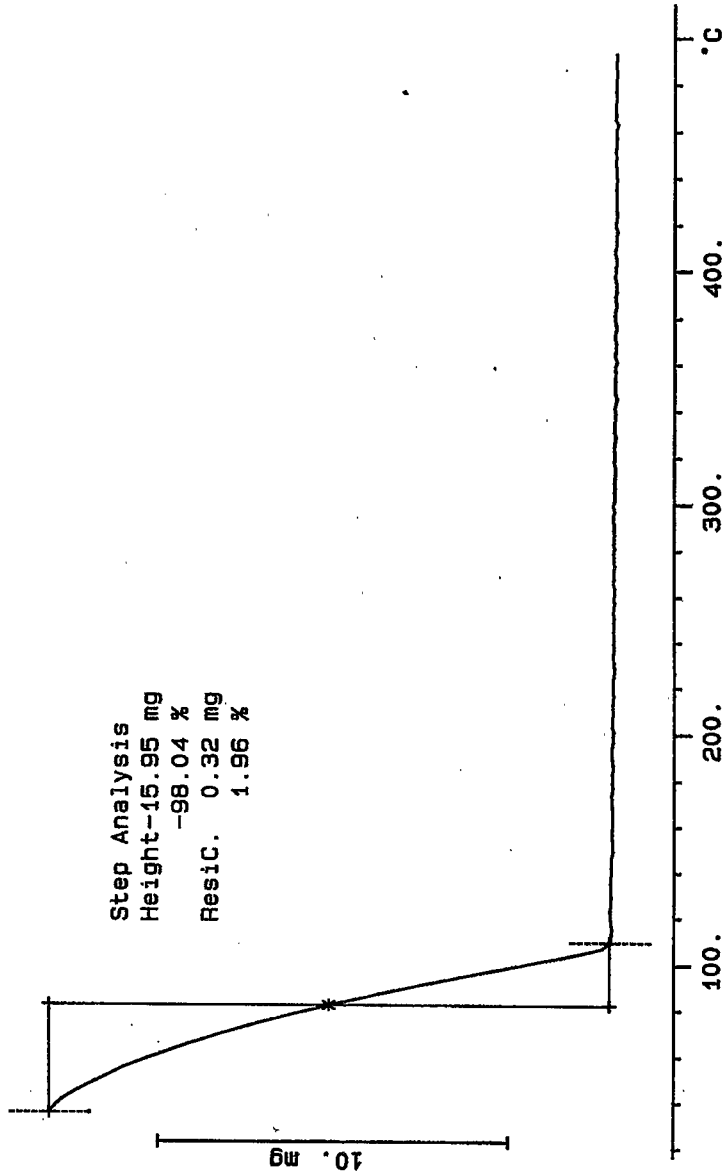
File: 00087.001 TG

METTLER

22-Oct-96

Ident: 0.0 222-S Laboratory

Step Analysis
Height-15.95 mg
-98.04 %
Resid. 0.32 mg
1.96 %



S96T005454 DUP N2

14.905 mg

Rate: 10.0 °C/min

File: 00089.001

Ident: 0.0

TG

METTLER

22-Oct-96

222-S Laboratory

Step Analysis

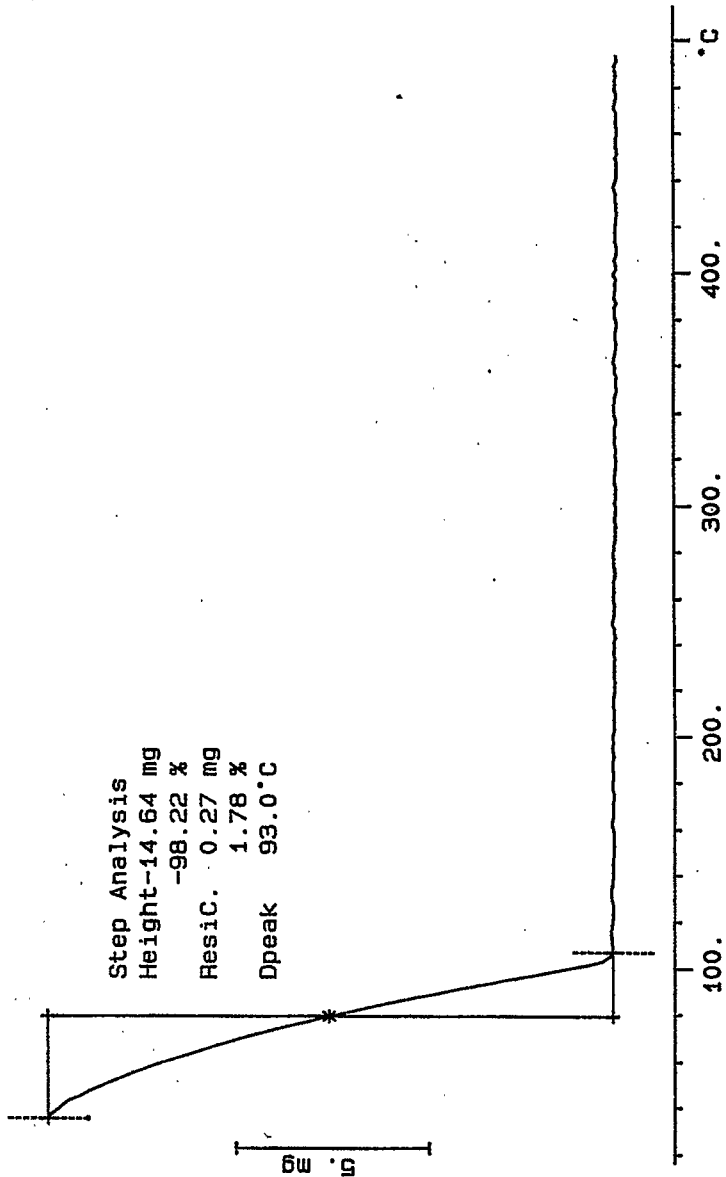
Height-14.64 mg

-98.22 %

ResidC. 0.27 mg

1.78 %

Dpeak 93.0 °C



HNF-SD-WM-PP-222-REV 9

LABCORE Data Entry Template for Worklist# 14072

Analyst: Sds Instrument: TGA0 1 Book # 82N8A

Method: LA-560-112 Rev/Mod C-0

Worklist Comment: AY-102 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.2</u>	<u>59.93</u>	<u>N/A</u>	%
96001366	AY-102 GRAB	2 SAMPLE	S96T005455	0	TGA-01	LIQUID	<u>N/A</u>	<u>98.04</u>		%
96001366	AY-102 GRAB	3 DUP	S96T005455	0	TGA-01	LIQUID	<u>98.04</u>	<u>97.93</u>	<u>N/A</u>	%
96001366	AY-102 GRAB	4 SAMPLE	S96T005456	0	TGA-01	LIQUID	<u>N/A</u>	<u>98.07</u>		%
96001366	AY-102 GRAB	5 DUP	S96T005456	0	TGA-01	LIQUID	<u>98.07</u>	<u>98.29</u>	<u>N/A</u>	%

Final page for worklist # 14072

Sds 10-21-96
Analyst Signature Date

Frank Mark 10-24-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela
10-30-96

¹²⁻²²⁻⁹⁶
TGA-031 instrument
was used.

10-22-96
Blandina
Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 17D TO 17G

TGA STD 82N8A N2
17.623 mg

File: 00055.001 TG METTLER 21-Oct-96
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height-10.56 mg
-59.93 %
Resid. 7.13 mg
40.46 %
Dpeak 87.5°C

5. mg

°C

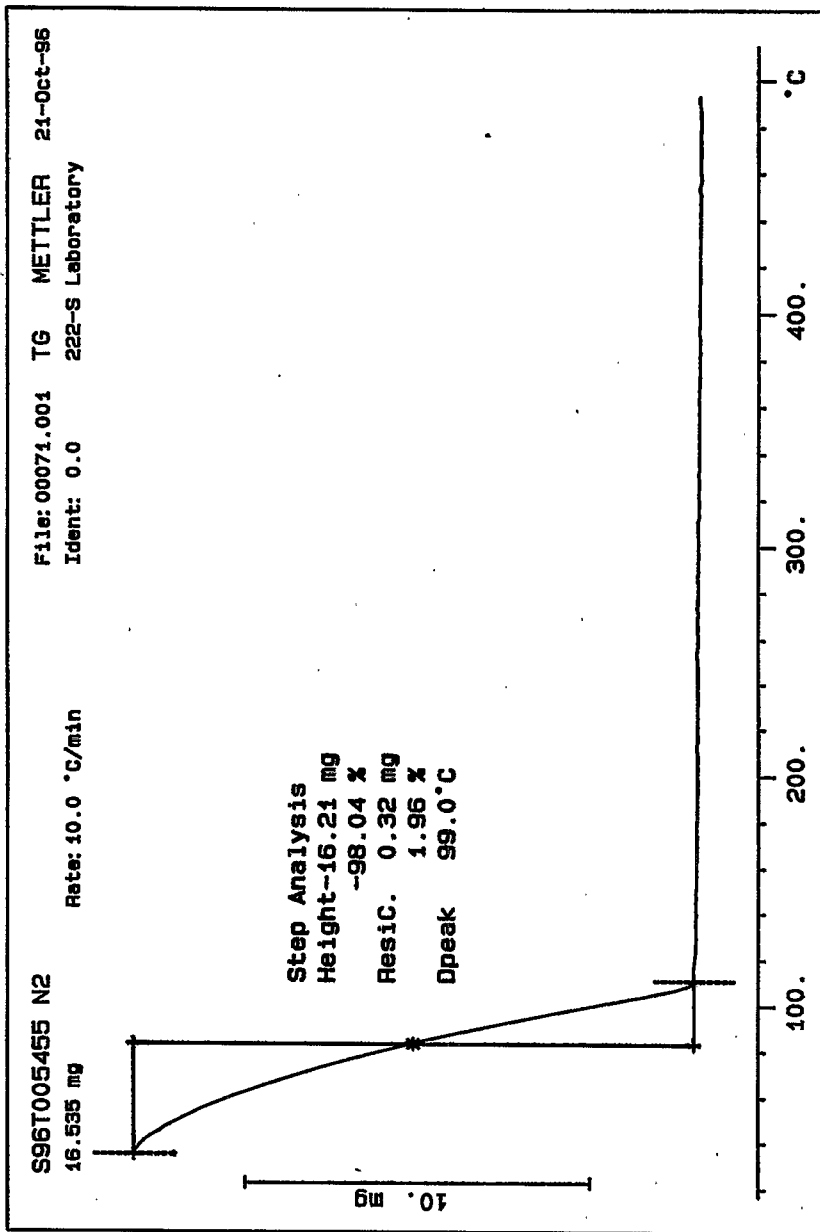
200.

150.

100.

50.

DP 10-21-96



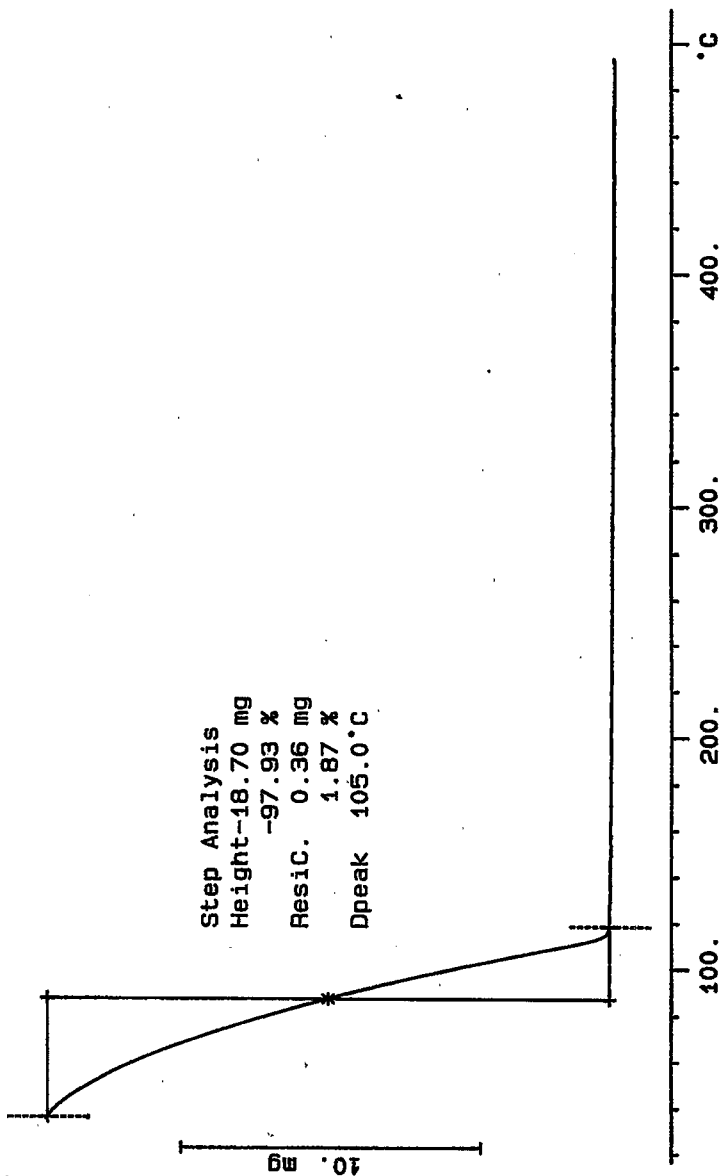
S96T005455 DUP N2

19.091 mg

Rate: 10.0 °C/min

File: 00073.001 TG METTLER 21-Oct-96

Ident: 0.0 222-S Laboratory



S96T005456 N2

24.290 mg

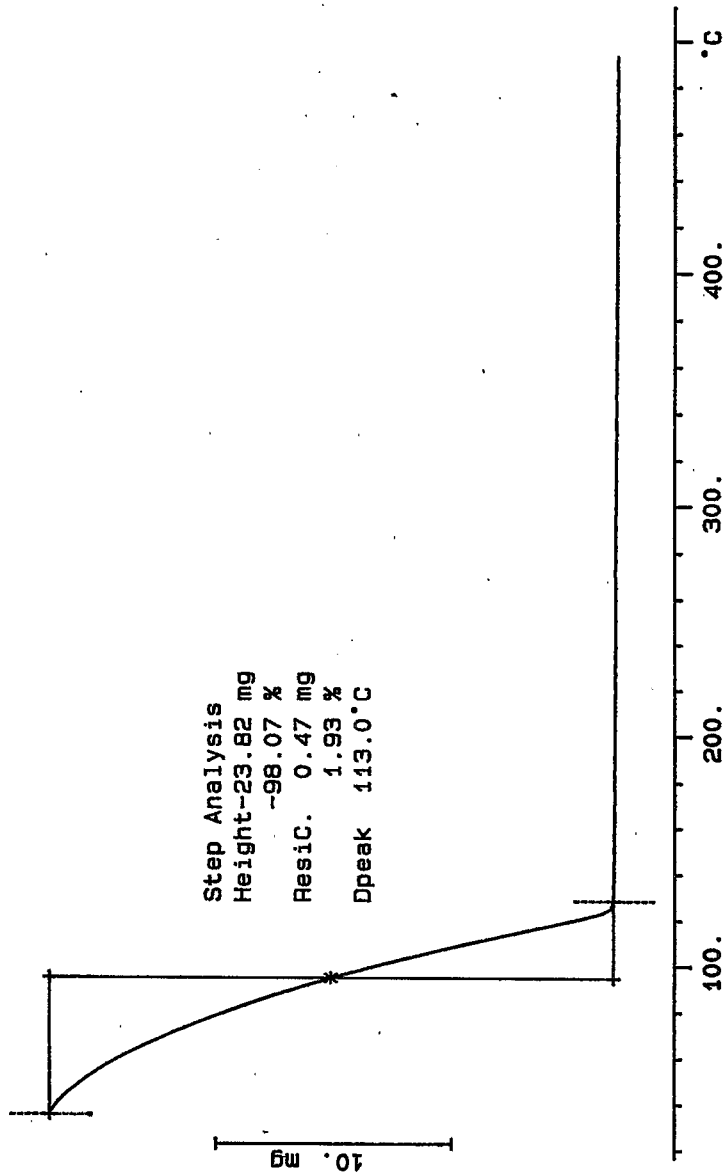
Rate: 10.0 °C/min

File: 00075.001 TG

METTLER

21-Oct-96

Ident: 0.0 222-S Laboratory



S96T005456 DUP N2

27.241 mg

Rate: 10.0 °C/min

File: 00077.001

TG

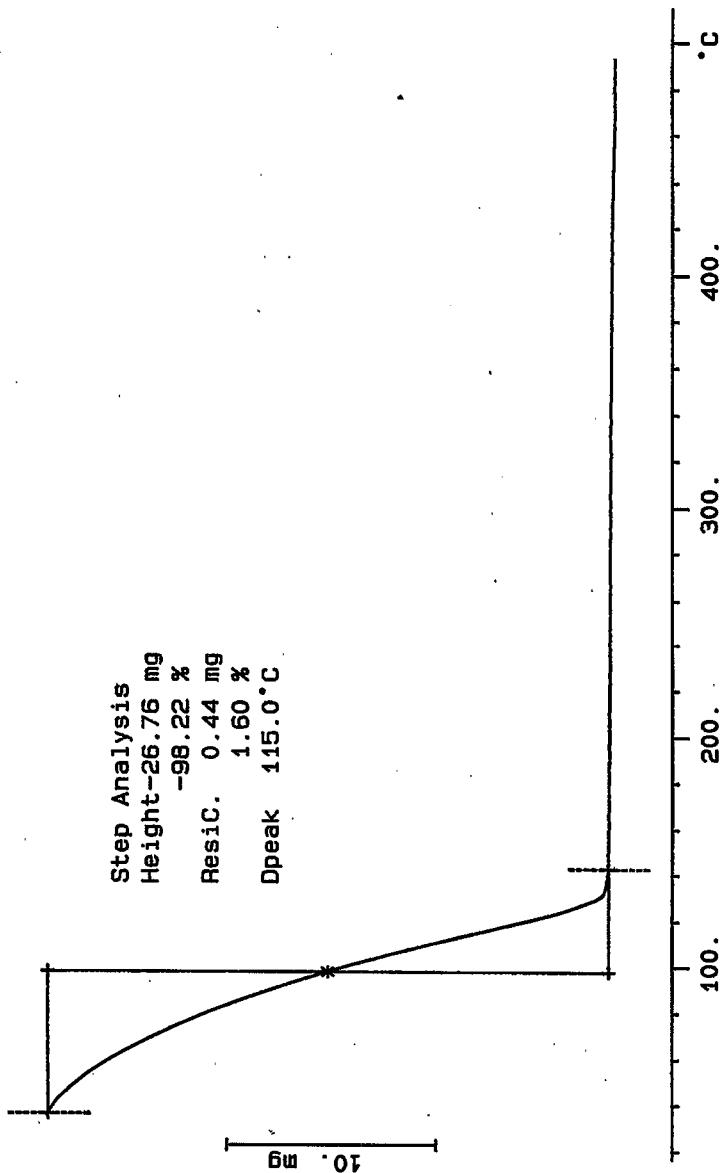
METTLER

21-Oct-96

Ident: 0.0

222-S Laboratory

Step Analysis
Height-26.76 mg
-98.22 %
Resid. 0.44 mg
1.60 %
Dpeak 115.0 °C



LABCORE Data Entry Template for Worklist# 14075

Analyst: RGA Instrument: BA001 Book # 133N/A

Method: LA-510-112 Rev/Mod C3

Worklist Comment: AY-102 SPG. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.398</u>	<u>1.371</u>	<u>N/A</u>	Sp.G.
96001366	AY-102 GRAB	2 SAMPLE	S96T005366 0		SPG-01	LIQUID	<u>N/A</u>	<u>.988</u>	<u>0.010</u>	Sp.G.
96001366	AY-102 GRAB	3 DUP	S96T005366 0		SPG-01	LIQUID	<u>.988</u>	<u>.995</u>	<u>N/A</u>	Sp.G.
96001366	AY-102 GRAB	4 SAMPLE	S96T005454 0		SPG-01	LIQUID	<u>N/A</u>	<u>.983</u>	<u>0.010</u>	Sp.G.
96001366	AY-102 GRAB	5 DUP	S96T005454 0		SPG-01	LIQUID	<u>.983</u>	<u>.992</u>	<u>N/A</u>	Sp.G.
96001366	AY-102 GRAB	6 SAMPLE	S96T005455 0		SPG-01	LIQUID	<u>N/A</u>	<u>.990</u>	<u>0.010</u>	Sp.G.
96001366	AY-102 GRAB	7 DUP	S96T005455 0		SPG-01	LIQUID	<u>.990</u>	<u>.995</u>	<u>N/A</u>	Sp.G.
96001366	AY-102 GRAB	8 SAMPLE	S96T005456 0		SPG-01	LIQUID	<u>N/A</u>	<u>.998</u>	<u>0.010</u>	Sp.G.
96001366	AY-102 GRAB	9 DUP	S96T005456 0		SPG-01	LIQUID	<u>.998</u>	<u>.995</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 14075

Analyst Signature

Date

11-27-96

Analyst Signature

Date

11-28-96

Approved RW Schrock 12/2/96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
R = Replicate Number, A = Aliquot Code.

SPECIFIC GRAVITY: LA-510-112 (C-3)

WORKLIST
#ANALYST
INITIALSANALYSIS
DATEINSTRUMENT
CODE

14075

RGA

11-27-76

ANALYSIS
TIME

23:30

☐ SAMPLE
☒ STANDARD☐ DUPLICATE

SAMPLE # =

STD # = 133116-A

TARE WEIGHT (g) 1.8568
GROSS WEIGHT (g) 1.9402
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8555
1.7638
0.07538☒ SAMPLE
☐ STANDARD☐ DUPLICATE

SAMPLE # = 597005366

STD # =

TARE WEIGHT (g) 1.8030
GROSS WEIGHT (g) 1.8775
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8030
1.8775
0.07538☐ SAMPLE
☐ STANDARD☒ DUPLICATE

66 SAMPLE # = 597005366

STD # =

TARE WEIGHT (g) 1.8465
GROSS WEIGHT (g) 1.9215
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8465
1.9215
0.07538☒ SAMPLE
☐ STANDARD☐ DUPLICATE

SAMPLE # = 597005454

STD # =

TARE WEIGHT (g) 1.8961
GROSS WEIGHT (g) 1.9705
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8961
1.9705
0.07538☐ SAMPLE
☐ STANDARD☒ DUPLICATE

SAMPLE # = 597005454

STD # =

TARE WEIGHT (g) 1.8288
GROSS WEIGHT (g) 1.9036
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8288
1.9036
0.07538☒ SAMPLE
☐ STANDARD☐ DUPLICATE

SAMPLE # = 597005455

STD # =

TARE WEIGHT (g) 1.8835
GROSS WEIGHT (g) 1.9581
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8835
1.9581
0.07538☐ SAMPLE
☐ STANDARD☒ DUPLICATE

SAMPLE # = 597005455

STD # =

TARE WEIGHT (g) 1.8950
GROSS WEIGHT (g) 1.9700
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8950
1.9700
0.07538☐ SAMPLE
☐ STANDARD☒ DUPLICATE

SAMPLE # = 597005456

STD # =

TARE WEIGHT (g) 1.8470
GROSS WEIGHT (g) 1.9193
VOL. of SOLUTION (mL) 0.07538REPLICATE
1.8470
1.9193
0.07538

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		STD	REPLICATE
STD	Gross Weight (W2)	1.9602	1.9688
Work List	Tare Weight (W1)	1.8568	1.8655
14075	Weight of Solution (W2-W1)	0.1034	0.1033
Test Code	Volume of Solution μ L	75.3800	75.3800
SPG-01	Specific Gravity	1.3717	1.3704
Matrix	Specific Gravity (Average)	1.3711	
LIQUID			
Sample #			
133N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity Average =	1.371	
11:30 PM			

Data Entry by:	<i>Leah Mack</i>	Date:	11/28/96
Approved by:	<i>BW Schneider</i>	Date:	12/2/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP	REPLICATE
SAMP	Gross Weight (W2)	1.8775	
Work List	Tare Weight (W1)	1.8030	
14075	Weight of Solution (W2-W1)	0.0745	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9883	NA
Matrix			
LIQUID			
Sample #			
S96T005366			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g}/\text{mL}]$		
Date			
11/27/96	ν RESULT ν		
Time	Specific Gravity =	0.988	
11:30 PM			

Data Entry by:

Date: 11/28/96

Approved by:

Date: 12/2/96

Form 510112L1 Rev. 1.1

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP-DUP	REPLICATE
SAMP-DUP	Gross Weight (W2)	1.9215	
Work List	Tare Weight (W1)	1.8465	
14075	Weight of Solution (W2-W1)	0.075	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9950	NA
Matrix			
LIQUID			
Sample #			
S96T005366			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g}/\text{mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.995	
11:30 PM			

Data Entry by:

Date: 11/28/96

Approved by:

Date: 12/2/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP	REPLICATE
SAMP	Gross Weight (W2)	1.9702	
Work List	Tare Weight (W1)	1.8961	
14075	Weight of Solution (W2-W1)	0.0741	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9830	NA
Matrix			
LIQUID			
Sample #			
S96T005454			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g}/\text{mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.983	
11:30 PM			

Data Entry by:

Date: 11/28/96

Approved by:

Date: 12/2/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

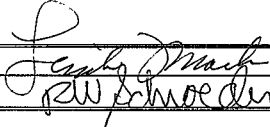
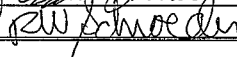
Type		SAMP-DUP	REPLICATE
SAMP-DUP	Gross Weight (W2)	1.9036	
Work List	Tare Weight (W1)	1.8288	
14075	Weight of Solution (W2-W1)	0.0748	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9923	NA
Matrix			
LIQUID			
Sample #			
S96T005454			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.992	
11:30 PM			

Data Entry by:	<i>Frank Mark</i>	Date:	11/28/96
Approved by:	<i>RW Schmeder</i>	Date:	12/2/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP	REPLICATE
SAMP	Gross Weight (W2)	1.9581	
Work List	Tare Weight (W1)	1.8835	
14075	Weight of Solution (W2-W1)	0.0746	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9897	NA
Matrix			
LIQUID			
Sample #			
S96T005455			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.990	
11:30 PM			

Data Entry by:		Date:	11/28/96
Approved by:		Date:	12/2/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP-DUP	REPLICATE
SAMP-DUP	Gross Weight (W2)	1.9700	
Work List	Tare Weight (W1)	1.8950	
14075	Weight of Solution (W2-W1)	0.075	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9950	NA
Matrix			
LIQUID			
Sample #			
S96T005455			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.995	
11:30 PM			

Data Entry by:

Date:

11/28/96

Approved by:

Date:

12/2/96

Form 510112L1 Rev. 1.1

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP	REPLICATE
SAMP	Gross Weight (W2)	1.9192	
Work List	Tare Weight (W1)	1.8440	
14075	Weight of Solution (W2-W1)	0.0752	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9976	NA
Matrix			
LIQUID			
Sample #			
S96T005456			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
RGA	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.998	
11:30 PM			

Data Entry by:

Date: 11/28/96

Approved by:

Date: 12/2/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMP-DUP	REPLICATE
SAMP-DUP	Gross Weight (W2)	1.9164	
Work List	Tare Weight (W1)	1.8414	
14075	Weight of Solution (W2-W1)	0.075	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9950	NA
Matrix			
LIQUID			
Sample #			
S96T005456			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
RGA			
Date			
11/27/96	v RESULT v		
Time	Specific Gravity =	0.995	
11:30 PM			

Data Entry by:	<i>Frank Smith</i>	Date:	11/28/96
Approved by:	<i>RW Schroeder</i>	Date:	12/2/96

LABCORE Data Entry Template for Worklist# 14063Analyst: ABP Instrument: PH01 >7 Book # 18N19-BMethod: LA-212-106 Rev/Mod B-0

Worklist Comment: AY-102 PH. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STDPH			PH-01	LIQUID	<u>7.00</u>	<u>6.95</u>	<u>N/A</u>	pH
96001366	AY-102 GRAB	2 SAMPLE	S96T005366	0	PH-01	LIQUID	<u>N/A</u>	<u>13.19</u>	<u>0.01</u>	pH
96001366	AY-102 GRAB	3 DUP	S96T005366	0	PH-01	LIQUID	<u>13.19</u>	<u>13.19</u>	<u>N/A</u>	pH
96001366	AY-102 GRAB	4 SAMPLE	S96T005454	0	PH-01	LIQUID	<u>N/A</u>	<u>13.27</u>	<u>0.01</u>	pH
96001366	AY-102 GRAB	5 DUP	S96T005454	0	PH-01	LIQUID	<u>13.27</u>	<u>13.27</u>	<u>N/A</u>	pH
96001366	AY-102 GRAB	6 SAMPLE	S96T005455	0	PH-01	LIQUID	<u>N/A</u>	<u>13.36</u>	<u>0.01</u>	pH
96001366	AY-102 GRAB	7 DUP	S96T005455	0	PH-01	LIQUID	<u>13.36</u>	<u>13.36</u>	<u>N/A</u>	pH
96001366	AY-102 GRAB	8 SAMPLE	S96T005456	0	PH-01	LIQUID	<u>N/A</u>	<u>13.37</u>	<u>0.01</u>	pH
96001366	AY-102 GRAB	9 DUP	S96T005456	0	PH-01	LIQUID	<u>13.37</u>	<u>13.37</u>	<u>N/A</u>	pH

Final page for worklist # 14063

Anthony P. Purns 10-21-96
Analyst Signature Date

Ray Schmitt 10-22-96
Analyst Signature Date

Approved Ray Schmitt
10/28/96

Data Entry Comments:

S96T005366 pH Limits Exceeded. upper Limit 12.00 Ray Schmitt

Same for S96T005454, 5455, 5456.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 14062

Analyst: adp

Instrument: PH01

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-102 OH. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	OH-01	LIQUID	1.664e4	1.65e4	99.159 % Recovery	
2 BLNK	0	0	OH-01	LIQUID	1	<42		ug/mL
3 SAMPLE	S96T005366	0	OH-01	LIQUID	N/A	2.47e3	250.000	ug/mL
4 DUP	S96T005366	0	OH-01	LIQUID	2.47e3	2.55e3	3.187	RPD
5 SAMPLE	S96T005454	0	OH-01	LIQUID	N/A	2.54e3	250.000	ug/mL
6 DUP	S96T005454	0	OH-01	LIQUID	2.54e3	2.59e3	1.949	RPD
7 SAMPLE	S96T005495	0	OH-01	LIQUID	N/A	2.50e3	250.000	ug/mL
8 DUP	S96T005495	0	OH-01	LIQUID	2.50e3	2.60e3	3.922	RPD
9 SAMPLE	S96T005456	0	OH-01	LIQUID	N/A	2.49e3	250.000	ug/mL
10 DUP	S96T005456	0	OH-01	LIQUID	2.49e3	2.54e3	1.988	RPD

Final page for worklist# 14062

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Ralf W. Schmidt 10/24/96
Reviewer Signature Date

HNE-SD-WM-DP-222, REV. 0

LABCORE Data Entry Template for Worklist# 14062

Analyst: ADP Instrument: PH01 Book # 79N8

Method: LA-211-102 Rev/Mod C-0

Worklist Comment: AY-102 OH. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			OH-01	LIQUID		<u>1.65^{E+4}</u>	N/A	ug/mL
		2 BLNK			OH-01	LIQUID	<u>1</u>	<u>< 250</u>	N/A	ug/mL
96001366	AY-102 GRAB	3 SAMPLE	S96T005366	0	OH-01	LIQUID	N/A	<u>2.84^{E+3}</u>		ug/mL
96001366	AY-102 GRAB	4 DUP	S96T005366	0	OH-01	LIQUID	<u>2.84^{E+3}</u>	<u>2.47^{E+3}</u>	N/A	ug/mL
96001366	AY-102 GRAB	5 SAMPLE	S96T005454	0	OH-01	LIQUID	N/A			ug/mL
96001366	AY-102 GRAB	6 DUP	S96T005454	0	OH-01	LIQUID			N/A	ug/mL
96001366	AY-102 GRAB	7 SAMPLE	S96T005455	0	OH-01	LIQUID	N/A			ug/mL
96001366	AY-102 GRAB	8 DUP	S96T005455	0	OH-01	LIQUID			N/A	ug/mL
96001366	AY-102 GRAB	9 SAMPLE	S96T005456	0	OH-01	LIQUID	N/A			ug/mL
96001366	AY-102 GRAB	10 DUP	S96T005456	0	OH-01	LIQUID			N/A	ug/mL

Final page for worklist # 14062

Anthony Furuta 10-22-96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

.2005 M HNO₃

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
R = Replicate Number, A = Aliquot Code.

OH (AUTO): LA-211-102 (C-0)

WORKLIST
#ANALYST
INITIALS

ADP

ANALYSIS
DATE

10-22-96

INSTRUMENT
CODEANALYSIS
TIME

14062-

+ ☒ SAMPLE
STANDARD☐ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 79N8

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

Blk EPI-.006

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

+ ☐ SAMPLE
STANDARD☒ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5366

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

TRP
596T 5366
EPI-.374

SS 500mL

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

+ ☐ SAMPLE
STANDARD☒ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5454

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

EPI-.380

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

+ ☐ SAMPLE
STANDARD☒ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5455

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

TRP
596T 5455
EPI-.381

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

EPI-.367

X

☒ SAMPLE
STANDARD☐ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5366

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

EPI-.416

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

X

☒ SAMPLE
STANDARD☐ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5454

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

EPI-.372

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

X

☒ SAMPLE
STANDARD☐ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5455

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

EPI-.307

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

X

☒ SAMPLE
STANDARD☐ DUPLICATE
PREP BLANK☐ SPIKE
REAGENT BLANK

SAMPLE/STD # = 596T 5456

MATRIX =

SAMPLE SIZE (mL) .500

VOL. H2O ADDED FOR DILUTION (if necessary)

VOL. DILUTED SAMPLE ANALYZED

3mL

EPI-.365

* BaCl2 VOLUME ADDED 1mL

* ATTACH PRINT REPORT #2 & #5

DUP 596T 5456
SS 500mL
H2O 3mL
BaCl2 1mL
EPI-.372

HNF-SD-WM-DP-222, REV. 0

TRP 500

S96T005455

date 96-10-22 time 04:48

GET pH 12 # 120

Id.#1 0479

Id.#2 2005

pH(init) 12.24

V/ml pH

EP1 .381 10.91

EP2 .530 8.11

EP3 .656 5.71

EP4 .691 4.62

stop volt.reached

=====

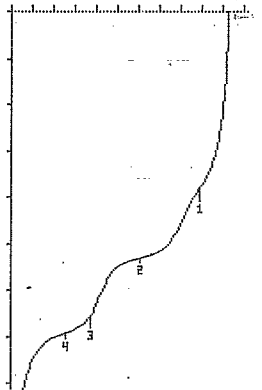
date 96-10-22 time 04:49

GET pH 12 # 120

.10ml/div Δ pH=1/div

start V .000 ml

2 13



500ml sem

S96T005456

date 96-10-22 time 04:15

GET pH 12 # 117

Id.#1 0479

Id.#2 2005

pH(init) 11.50

V/ml pH

EP1 .365 9.58

EP2 .685 4.68

stop volt.reached

=====

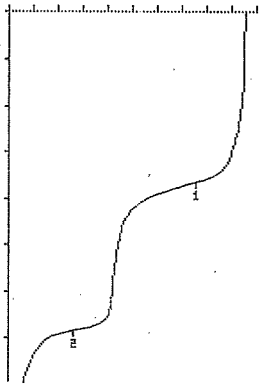
date 96-10-22 time 04:15

GET pH 12 # 117

.10ml/div Δ pH=1/div

start V .000 ml

2 12



500ml dup

S96T005456

date 96-10-22 time 04:24

GET pH 12 # 118

Id.#1 0479

Id.#2 2005

pH(init) 11.64

V/ml pH

EP1 .372 8.90

EP2 .686 4.98

stop volt.reached

=====

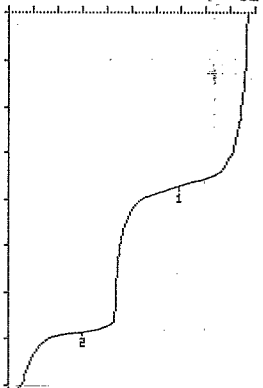
date 96-10-22 time 04:25

GET pH 12 # 118

.10ml/div Δ pH=1/div

start V .000 ml

2 12

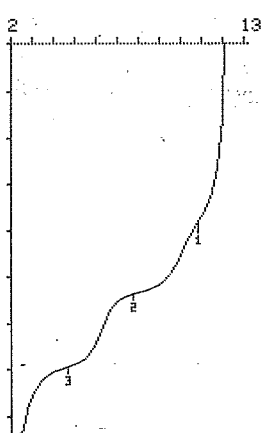


500ml dup
S96T005454
date 96-10-22 time 04:04
GET pH 12 # 116
Id.#1 0479
Id.#2 2005
pH(init) 12.05
V/ml pH
EP1 .380 10.86
EP2 .536 7.78
EP3 .695 4.63
stop volt.reached
=====

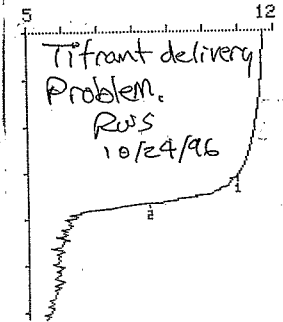
SAM 500mL
S96T005455
date 96-10-22 time 03:18
GET pH 12 # 112
Id.#1 0479
Id.#2 2005
pH(init) 11.68
V/ml pH
EP1 .307 10.95
EP2 .369 8.46
measpt. overflow
=====

DUP 500mL
S96T005455
date 96-10-22 time 03:30
GET pH 12 # 113
Id.#1 0479
Id.#2 2005
pH(init) 11.72
V/ml pH
EP1 .367 9.07
EP2 .391 7.52
EP3 .448 6.51
EP4 .679 4.35
stop volt.reached
=====

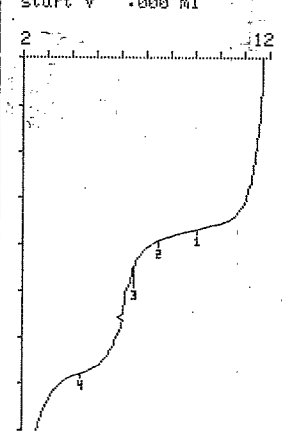
date 96-10-22 time 04:04
GET pH 12 # 116
.10ml/div Δ pH=1/div
start V .000 ml



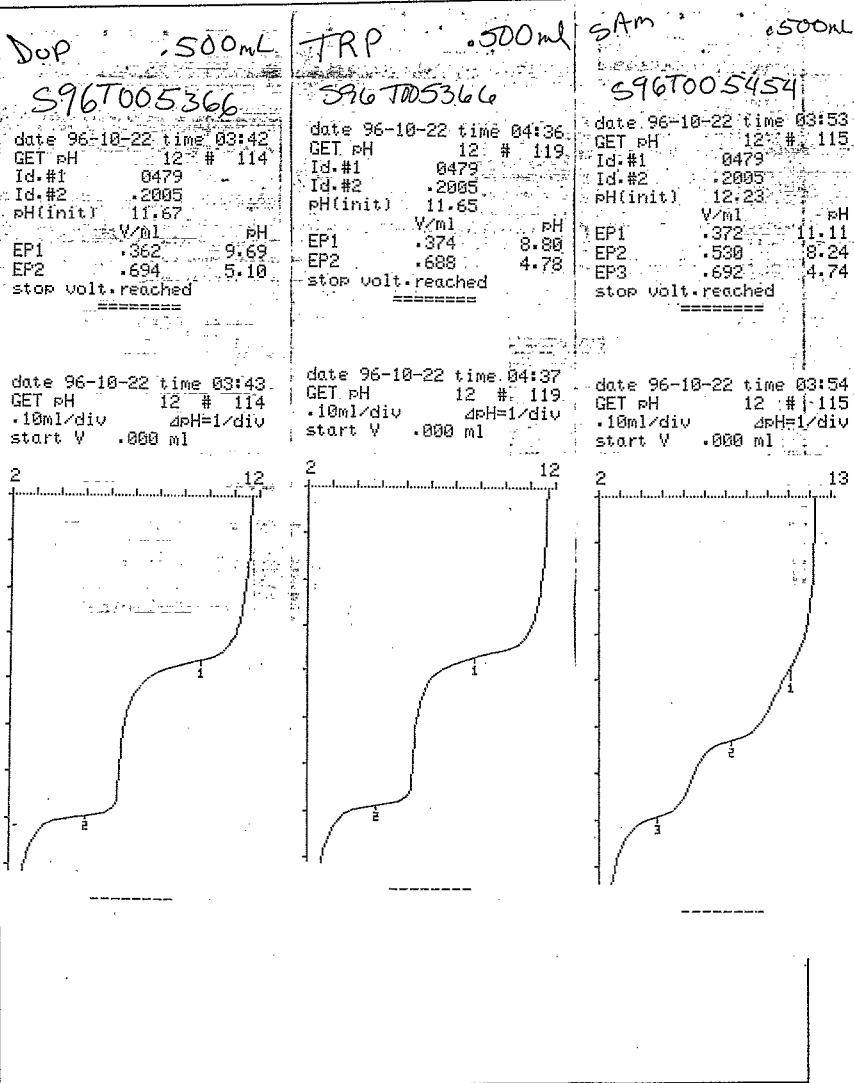
date 96-10-22 time 03:18
GET pH 12 # 112
.10ml/div Δ pH=1/div
start V .000 ml



date 96-10-22 time 03:32
GET pH 12 # 113
.10ml/div Δ pH=1/div
start V .000 ml



OH ANALYSIS



BEST AVAILABLE COPY

OH ANALYSIS

BIK

.050mL
STD 79N8.500mL SAM
S96T005366

date 96-10-22 time 02:08
 GET pH 12 # 109
 Id.#1 0479
 Id.#2 2005
 pH(init) 5.07
 V/ml 4.22
 EP1 .006
 stop volt.reached
 =====

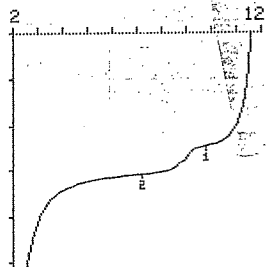
date 96-10-22 time 02:49
 GET pH 12 # 110
 Id.#1 0479
 Id.#2 2005
 pH(init) 11.56
 V/ml 9.76
 EP1 .242
 EP2 .308
 stop volt.reached
 =====

date 96-10-22 time 03:03
 GET pH 12 # 111
 Id.#1 0479
 Id.#2 2005
 pH(init) 11.72
 V/ml 9.65
 EP1 .416
 EP2 .734
 stop volt.reached
 =====

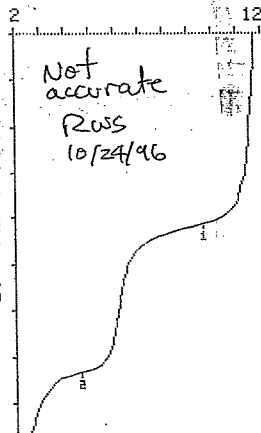
date 96-10-22 time 02:08
 GET pH 12 # 109
 .10ml/div Δ pH=1/div
 start V .000 ml



date 96-10-22 time 02:50
 GET pH 12 # 110
 .10ml/div Δ pH=1/div
 start V .000 ml



date 96-10-22 time 03:04
 GET pH 12 # 111
 .10ml/div Δ pH=1/div
 start V .000 ml



BEST AVAILABLE COPY

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

		STD
Type	Sample Size (mL) SS	0.050
STD	Concentration of HNO ₃ (Molarity)	0.2005
Work List	HNO ₃ Titrant at OH end-point in mL	0.242
14062	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	9.70E-01
OH-01	OH in Sample in µg/mL (PPM)	1.65E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
STD 79N8		
Instrument Code	Detection Limit (µg/mL)	2.50E+03
PH-01		
Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		STD
	Concentration of OH in Sample (Molarity)	9.70E-01
	OH in Sample in µg/mL (PPM)	1.65E+04

Data Entry by:	NEW	Date:	10/22/96
Approved by:	Rw Schmitt	Date:	10/23/96

Form 211102_1 Rev. 1.3

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	BLNK
BLNK	Concentration of HNO ₃ (Molarity)	3 0.500
Work List	HNO ₃ Titrant at OH end-point in mL	0.2005
14062	Dilution Factor DF	0.006
Test Code	Concentration of OH in Sample (Molarity)	1
OH-01	OH in Sample in µg/mL (PPM)	2.41E-03
Matrix		4.09E+01
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
BLNK		
Instrument Code	Detection Limit (µg/mL)	42 2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
		BLNK
	Concentration of OH in Sample (Molarity)	2.41E-03
	OH in Sample in µg/mL (PPM)	42 250

The Result is < Detection Limit

Data Entry by:	NEW	Date:	10/22/96
Approved by:	RW Schaefer	Date:	10/23/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	SAM-DUP- RWS 10/24/96
SAM-DUP- RWS 10/24/96	Concentration of HNO3 (Molarity)	0.500
Work List	HNO3 Titrant at OH end-point in mL	0.2005
14062	Dilution Factor DF	0.362
Test Code	Concentration of OH in Sample (Molarity)	1
OH-01	OH in Sample in µg/mL (PPM)	1.45E-01
Matrix		2.47E+03
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005366		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
	Concentration of OH in Sample (Molarity)	SAM-DUP- RWS 10/24/96
	OH in Sample in µg/mL (PPM)	1.45E-01
		2.47E+03

Data Entry by:	NEW	Date:	10/22/96
Approved by:	RW Schuch	Date:	10/24/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	SAMP-TRP DP
SAMP-TRP DP	Concentration of HNO ₃ (Molarity)	0.500
Work List	HNO ₃ Titrant at OH end-point in mL	0.2005
14062	Dilution Factor DF	0.374
Test Code	Concentration of OH in Sample (Molarity)	1
OH-01	OH in Sample in µg/mL (PPM)	1.50E-01
Matrix		2.55E+03
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005366		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
		SAMP-TRP DP
	Concentration of OH in Sample (Molarity)	1.50E-01
	OH in Sample in µg/mL (PPM)	2.55E+03

Data Entry by: NEW Date: 10/22/96
 Approved by: (2a) Schneider Date: 10/23/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

		SAM
Type	Sample Size (mL) SS	0.500
SAM	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.372
14062	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.49E-01
OH-01	OH in Sample in µg/mL (PPM)	2.54E+03
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005454		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
ADP	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
Date		
10/22/96		
Time		
		SAM
Concentration of OH in Sample (Molarity)		1.49E-01
OH in Sample in µg/mL (PPM)		2.54E+03

Data Entry by:	NEW	Date:	10/22/96
Approved by:	2w Schmitt	Date:	10/24/96

Form 211102_1 Rev. 1.3

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

		SAM-DUP
Type	Sample Size (mL) SS	0.500
SAM-DUP	Concentration of HNO ₃ (Molarity)	0.2005
Work List	HNO ₃ Titrant at OH end-point in mL	0.380
14062	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.52E-01
OH-01	OH in Sample in µg/mL (PPM)	2.59E+03

Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005454		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
		SAM-DUP
	Concentration of OH in Sample (Molarity)	1.52E-01
	OH in Sample in µg/mL (PPM)	2.59E+03

Data Entry by:

Approved by:

Form 211102_1 Rev. 1.3

Date: 10/22/96

Date: 10/24/96

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	SAM-DUP <i>RWS</i> 10/24/96
SAM-DUP <i>RWS</i> 10/24/96	Concentration of HNO3 (Molarity)	0.500
Work List	HNO3 Titrant at OH end-point in mL	0.2005
14062	Dilution Factor DF	0.367
Test Code	Concentration of OH in Sample (Molarity)	1
OH-01	OH in Sample in µg/mL (PPM)	1.47E-01
Matrix		2.50E+03
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005455		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
	Concentration of OH in Sample (Molarity)	SAM-DUP <i>RWS</i> 10/24/96
	OH in Sample in µg/mL (PPM)	1.47E-01
		2.50E+03

Data Entry by:	<i>NEC</i>	Date:	10/22/96
Approved by:	<i>RWS</i>	Date:	10/24/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	SAM-TRP <i>DVP</i>	0.500
SAM-TRP <i>DVP</i>	Concentration of HNO3 (Molarity)		0.2005
Work List	HNO3 Titrant at OH end-point in mL		0.381
14062	Dilution Factor DF		1
Test Code	Concentration of OH in Sample (Molarity)		1.53E-01
OH-01	OH in Sample in µg/mL (PPM)		2.60E+03
Matrix			
LIQUID			
Sample #	Detection Limit = 125µg / SS * DF		
S96T005455			
Instrument Code	Detection Limit (µg/mL)		2.50E+02
PH-01			
Analyst	OH Molarity = (mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor		
ADP			
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))		
10/22/96			
Time		SAM-TRP <i>DVP</i>	
	Concentration of OH in Sample (Molarity)		1.53E-01
	OH in Sample in µg/mL (PPM)		2.60E+03

RWS
10/24/96RWS
10/24/96

Data Entry by:	NFW	Date:	10/22/96
Approved by:	RWS	Date:	10/24/96

Form 211102_1 Rev. 1.3

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

		SAM
Type	Sample Size (mL) SS	0.500
SAM	Concentration of HNO ₃ (Molarity)	0.2005
Work List	HNO ₃ Titrant at OH end-point in mL	0.365
14062	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.46E-01
OH-01	OH in Sample in µg/mL (PPM)	2.49E+03
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005456		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = (mL HNO ₃)*(M HNO ₃)/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
		SAM
Concentration of OH in Sample (Molarity)		1.46E-01
OH in Sample in µg/mL (PPM)		2.49E+03

Data Entry by:	NEW	Date:	10/22/96
Approved by:	DW Schupp	Date:	10/24/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

OH (AUTO) : LA-211-102 (C-0)

		SAM-DUP
Type	Sample Size (mL) SS	0.500
SAM-DUP	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.372
14062	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.49E-01
OH-01	OH in Sample in µg/mL (PPM)	2.54E+03
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S96T005456		
Instrument Code	Detection Limit (µg/mL)	2.50E+02
PH-01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
ADP		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
10/22/96		
Time		
		SAM-DUP
	Concentration of OH in Sample (Molarity)	1.49E-01
	OH in Sample in µg/mL (PPM)	2.54E+03

Data Entry by:	DEW	Date:	10/22/96
Approved by:	S. J. Schuchert	Date:	10/23/96

LABCORE Completed Worklist Report for Worklist# 14069

Analyst: eal

Instrument: IC01

Book# 32 N20 D

Method: LA-533-105 Rev/Mod D 1

Worklist Comment: AY-102 IC. RCJ

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	②IC-QC F	QC	1	<1.20e-2		ug/mL
1 CCB	0	②IC-QC CL	QC	1	<1.70e-2		ug/mL
1 CCB	0	②IC-QC NO2	QC	1	<1.08e-1		ug/mL
1 CCB	0	②IC-QC BR	QC	1	<1.25e-1		ug/mL
1 CCB	0	②IC-QC NO3	QC	1	<1.39e-1		ug/mL
1 CCB	0	②IC-QC P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	②IC-QC S04	QC	1	<1.38e-1		ug/mL
1 CCB	0	②IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	②IC-QC F	QC	5.90e01	6.07e+01	102.881 % Recovery	
2 CCV	0	②IC-QC CL	QC	7.90e01	8.37e+01	105.949 % Recovery	
2 CCV	0	②IC-QC NO2	QC	5.39e02	5.38e+02	99.814 % Recovery	
2 CCV	0	②IC-QC BR	QC	5.89e02	6.00e+02	101.868 % Recovery	
2 CCV	0	②IC-QC NO3	QC	5.94e02	6.09e+02	102.525 % Recovery	
2 CCV	0	②IC-QC P04	QC	5.45e02	5.59e+02	102.569 % Recovery	
2 CCV	0	②IC-QC S04	QC	6.31e02	6.52e+02	103.328 % Recovery	
2 CCV	0	②IC-QC OXALATE2	QC	5.26e02	5.32e+02	101.141 % Recovery	
3 SAMPLE	S96T005366	②IC-01 F-02	LIQUID	N/A	4.133e+00	1.212	ug/mL
3 SAMPLE	S96T005366	②IC-01 CL-02	LIQUID	N/A	1.107e+02	1.717	ug/mL
3 SAMPLE	S96T005366	②IC-01 NO2-02	LIQUID	N/A	7.587e+02	10.910	ug/mL
3 SAMPLE	S96T005366	②IC-01 BR-02	LIQUID	N/A	1.262e+01	12.620	ug/mL
3 SAMPLE	S96T005366	②IC-01 NO3-02	LIQUID	N/A	3.981e+02	14.040	ug/mL
3 SAMPLE	S96T005366	②IC-01 P04-02	LIQUID	N/A	5.160e+02	12.120	ug/mL
3 SAMPLE	S96T005366	②IC-01 S04-02	LIQUID	N/A	2.599e+02	13.940	ug/mL
3 SAMPLE	S96T005366	②IC-01 OXALATE2	LIQUID	N/A	5.151e+01	10.610	ug/mL
4 DUP	S96T005366	②IC-01 F-02	LIQUID	4.133e+00	4.07e+00	1.463	RPD
4 DUP	S96T005366	②IC-01 CL-02	LIQUID	1.11e+02	1.12e+02	0.897	RPD
4 DUP	S96T005366	②IC-01 NO2-02	LIQUID	7.59e+02	7.63e+02	0.526	RPD
4 DUP	S96T005366	②IC-01 BR-02	LIQUID	<1.26e1	<1.26e1		RPD
4 DUP	S96T005366	②IC-01 NO3-02	LIQUID	3.98e+02	4.00e+02	0.501	RPD
4 DUP	S96T005366	②IC-01 P04-02	LIQUID	5.16e+02	5.22e+02	1.156	RPD
4 DUP	S96T005366	②IC-01 S04-02	LIQUID	2.60e+02	2.58e+02	0.772	RPD
4 DUP	S96T005366	②IC-01 OXALATE2	LIQUID	5.15e+01	5.26e+01	2.113	RPD
5 SPK	S96T005366	②IC-01 F-02	LIQUID	5.90e01	7.62e+01	129.153 % Recovery	
5 SPK	S96T005366	②IC-01 CL-02	LIQUID	7.90e01	7.97e+01	100.886 % Recovery	
5 SPK	S96T005366	②IC-01 NO2-02	LIQUID	5.39e02	5.63e+02	104.453 % Recovery	
5 SPK	S96T005366	②IC-01 BR-02	LIQUID	5.89e02	5.71e+02	96.944 % Recovery	
5 SPK	S96T005366	②IC-01 NO3-02	LIQUID	5.94e02	6.24e+02	105.051 % Recovery	
5 SPK	S96T005366	②IC-01 P04-02	LIQUID	5.45e02	5.66e+02	103.853 % Recovery	
5 SPK	S96T005366	②IC-01 S04-02	LIQUID	6.31e02	6.36e+02	100.792 % Recovery	
5 SPK	S96T005366	②IC-01 OXALATE2	LIQUID	5.26e02	5.32e+02	101.141 % Recovery	
6 SAMPLE	S96T005454	②IC-01 F-02	LIQUID	N/A	4.433e+00	1.212	ug/mL

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 14069

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S96T005454	0	@IC-01 CL-02	LIQUID	N/A	1.172e+02	1.717	ug/mL
6 SAMPLE	S96T005454	0	@IC-01 NO2-02	LIQUID	N/A	7.857e+02	10.910	ug/mL
6 SAMPLE	S96T005454	0	@IC-01 BR-02	LIQUID	N/A	1.262e+01	12.620	ug/mL
6 SAMPLE	S96T005454	0	@IC-01 NO3-02	LIQUID	N/A	4.132e+02	14.040	ug/mL
6 SAMPLE	S96T005454	0	@IC-01 PO4-02	LIQUID	N/A	5.625e+02	12.120	ug/mL
6 SAMPLE	S96T005454	0	@IC-01 SO4-02	LIQUID	N/A	2.651e+02	13.940	ug/mL
6 SAMPLE	S96T005454	0	@IC-01 OXALATE2	LIQUID	N/A	6.369e+01	10.610	ug/mL
7 DUP	S96T005454	0	@IC-01 F-02	LIQUID	4.43e+00	4.25e+00	4.147	RPD
7 DUP	S96T005454	0	@IC-01 CL-02	LIQUID	1.17e+02	1.17e+02	0.000	RPD
7 DUP	S96T005454	0	@IC-01 NO2-02	LIQUID	7.86e+02	7.82e+02	0.510	RPD
7 DUP	S96T005454	0	@IC-01 BR-02	LIQUID	<1.26e1	<1.26e1		RPD
7 DUP	S96T005454	0	@IC-01 NO3-02	LIQUID	4.13e+02	4.20e+02	1.681	RPD
7 DUP	S96T005454	0	@IC-01 PO4-02	LIQUID	5.62e+02	5.39e+02	4.178	RPD
7 DUP	S96T005454	0	@IC-01 SO4-02	LIQUID	2.65e+02	2.80e+02	5.505	RPD
7 DUP	S96T005454	0	@IC-01 OXALATE2	LIQUID	6.37e+01	5.41e+01	16.299	RPD

Final page for worklist# 14069

Analyst Signature _____ Date _____

David K. McLeod 12-6-96
Analyst Signature _____ Date _____

John Luge 12/9/96
Reviewer Signature _____ Date _____

Uploaded 12-6-96 14069NV.CSV

Validated 12/9/96 gmf

LABCORE Data Entry Template for Worklist# 14069

Analyst: Ed Instrument: IC0 Tree Book# 32N20-D

Method: LA-533-105 Rev/Mod D1

Worklist Comment: AY-102 IC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 CCV			@IC-QC	QC		
3 SAMPLE	S96T005366 0		@IC-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4 DUP	S96T005366 0		@IC-01	LIQUID		
5 SPK	S96T005366 0		@IC-01	LIQUID		
6 SAMPLE	S96T005454 0		@IC-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7 DUP	S96T005454 0		@IC-01	LIQUID		

Final page for worklist # 14069

A. Lamb 11-28-96
Analyst Signature Date
Uploaded 12-6-96 14069NV.CSV

Andrew M. Gland 12-6-96
Analyst Signature Date

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				06-Dec-96			
Worklist#: 14069				Data File: 14069NV.CSV							
		Seq	Type	Sample #			Seq#	Data File	Sample Name	Dilution	
-	=>	1	CCB		-	1	96112811.d02	INST. BLANK		1.00	
	=>	2	CCV			2	96112811.d01	32N20-D STD.		101.00	
	=>	3	SAMPLE	S96T005366			96112821.d01	S96T005366		5151.00	
	=>	4	DUP	S96T005366			96112821.d02	S96T005366		1111.00	
	=>	5	SPK	S96T005366	3	96112821.d03	S96T005366		101.00		
	=>	6	SAMPLE	S96T005454	4	96112821.d04	S96T005366	DUP	101.00		
		7	DUP	S96T005454	5	96112821.d05	S96T005366	SPK	101.00		
					6	96112821.d06	S96T005454		101.00		
					7	96112821.d07	S96T005454	DUP	101.00		
+					+						

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

=====

Sample Name: 32N20-D STD.	Date: 11/28/1996 22:06:02
Data File : C:\DX\DATA\96112811.D01	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 1	Detector: CDM-1
Analyst : <i>A. Lamber</i>	Column: AG4A/AS4A anion column

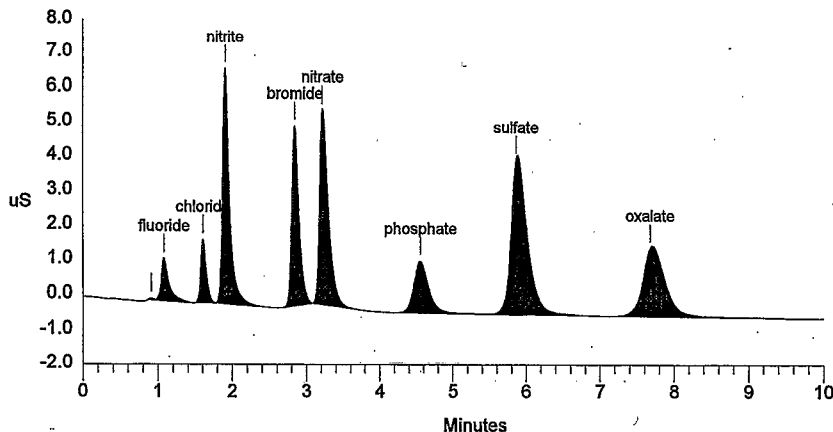
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Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	42	181	2	
2	1.09	fluoride	60.690	1214	8781	2	-1.21
3	1.61	chloride	83.666	1831	9569	1	1.69
4	1.91	nitrite	538.393	6783	43826	1	-0.17
5	2.85	bromide	600.491	5208	35179	1	3.89
6	3.22	nitrate	608.660	5635	46634	1	5.57
7	4.56	phosphate	559.350	1479	20973	1	-0.65
8	5.87	sulfate	652.430	4453	69321	1	-0.90
9	7.68	oxalate	532.127	1949	41365	1	0.00
Totals			3635.807	28593	275828		

File: 96112811.D01 Sample: 32N20-D STD.



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 98 TO 99

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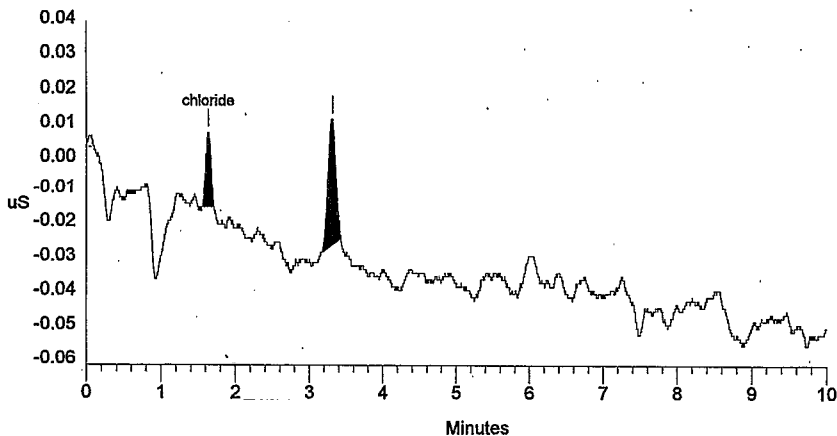
Sample Name: INST. BLANK	Date: 11/28/1996 22:18:51
Data File : C:\DX\DATA\96112811.D02	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 2	Detector: CDM-1
Analyst :	Column: AG4A/AS4A anion column

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Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.63	chloride	-0.013	22	106	1	3.38
2	3.31		0.000	37	269	1	
Totals			-0.013	59	376		

File: 96112811.D02 Sample: INST. BLANK

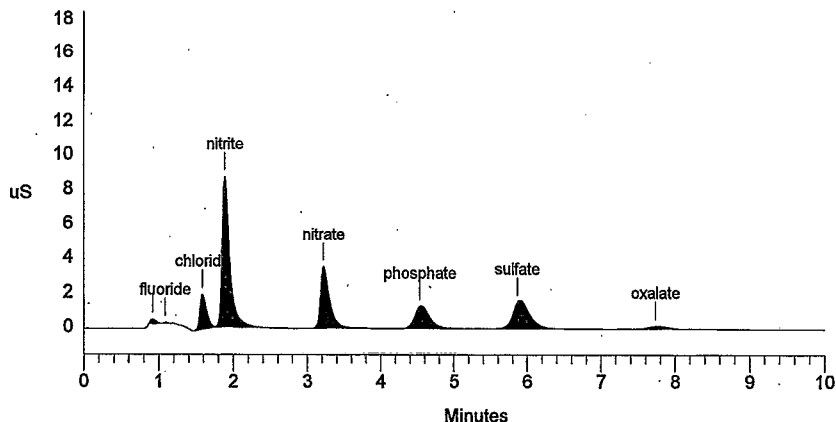
Sample Name: S96T005366 Date: 11/28/1996 22:50:59
 Data File : C:\DX\DATA\96112821.D03
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 3 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	271	1408	2	
2	1.09	fluoride	4.131	65	237	2	-1.21
3	1.59	chloride	110.705	2005	12650	1	0.42
4	1.89	nitrite	758.677	8708	62469	1	-1.22
5	3.22	nitrate	398.130	3515	30026	1	5.57
6	4.53	phosphate	515.950	1286	19296	1	-1.23
7	5.87	sulfate	259.894	1532	26892	1	-0.90
8	7.73	oxalate	51.507	179	3529	1	0.69
Totals			2098.993	17562	156507		

File: 96112821.D03 Sample: S96T005366



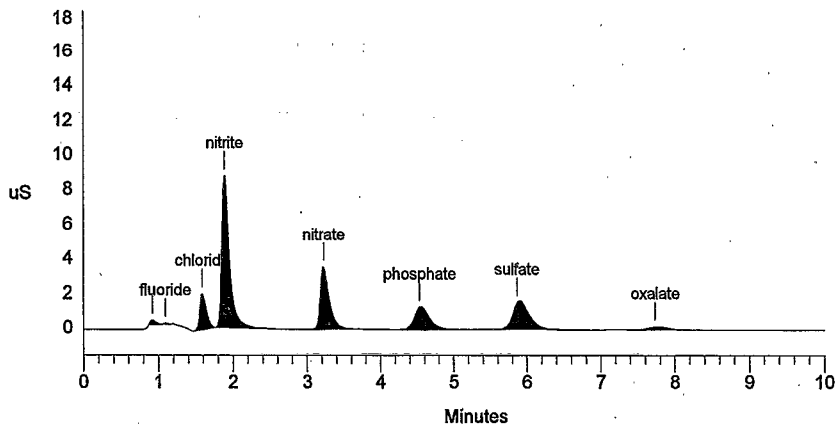
Sample Name: S96T005366 DUP Date: 11/28/1996 23:06:48
 Data File : C:\DX\DATA\96112821.D04
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 4 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	252	1259	1	
2	1.09	fluoride	4.074	64	229	1	-0.61
3	1.59	chloride	112.278	2058	12831	1	0.42
4	1.89	nitrite	762.777	8760	62818	1	-1.22
5	3.23	nitrate	400.114	3552	30182	1	5.79
6	4.53	phosphate	522.064	1299	19532	1	-1.23
7	5.87	sulfate	257.775	1545	26666	1	-0.90
8	7.73	oxalate	52.618	183	3615	1	0.69
Totals			2111.700	17713	157131		

File: 96112821.D04 Sample: S96T005366 DUP



HNF-SD-WM-DP-222, REV. 0

Sample Name: S96T005366 SPK
 Data File : C:\DX\DATA\96112821.D05
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 5
 Analyst : Column: AG4A/AS4A anion column

Date: 11/28/1996 23:18:41

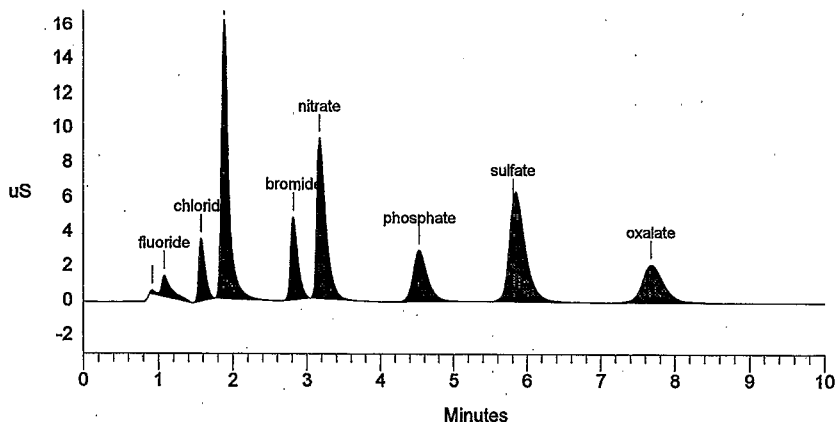
Detector: CDM-1

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	217	949	2	
2	1.08	fluoride	80.342	1214	11840	2	-1.82
3	1.57	chloride	190.357	3642	21951	1	-0.42
4	1.89	nitrite	1321.567	16202	111102	1	-1.22
5	2.82	bromide	570.722	4821	33381	1	2.92
6	3.17	nitrate	1022.042	9269	79841	1	4.04
7	4.53	phosphate	1082.170	2978	41583	1	-1.23
8	5.81	sulfate	895.705	5725	96130	1	-1.80
9	7.68	oxalate	583.572	2184	45451	1	0.00
Totals			5746.477	46251	442227		

File: 96112821.D05 Sample: S96T005366 SPK



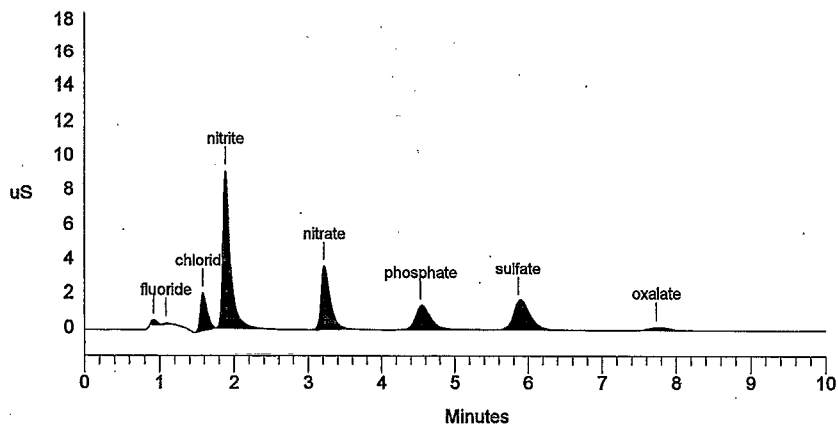
Sample Name: S96T005454 Date: 11/28/1996 23:30:43
 Data File : C:\DX\DATA\96112821.D06
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 6 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	266	1324	2	
2	1.09	fluoride	4.433	71	282	2	-1.21
3	1.58	chloride	117.203	2157	13396	1	0.00
4	1.89	nitrite	785.723	9101	64773	1	-1.22
5	3.22	nitrate	413.171	3667	31206	1	5.57
6	4.53	phosphate	562.538	1368	21096	1	-1.23
7	5.87	sulfate	265.065	1613	27444	1	-0.90
8	7.73	oxalate	63.694	200	4480	1	0.69
Totals			2211.826	18444	164002		

File: 96112821.D06 Sample: S96T005454



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Sample Name: S96T005454 DUP                      Date: 11/28/1996 23:41:28
Data File  : C:\DX\DATA\96112821.D07
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7                Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
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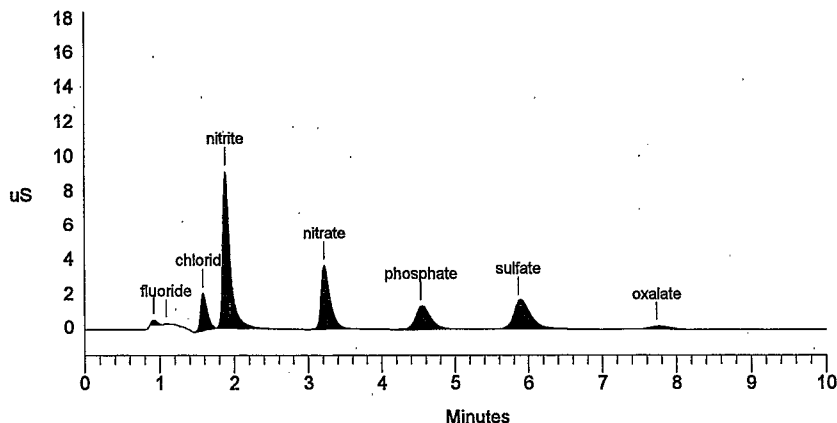
Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 101 3000 5Hz 0.00 10.00 50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	262	1295	1	
2	1.09	fluoride	4.253	68	255	1	-1.21
3	1.58	chloride	117.397	2188	13419	1	0.00
4	1.89	nitrite	781.848	9117	64442	1	-1.22
5	3.22	nitrate	420.288	3676	31765	1	5.57
6	4.53	phosphate	539.185	1367	20193	1	-1.23
7	5.87	sulfate	280.063	1653	29048	1	-0.90
8	7.73	oxalate	54.065	187	3728	1	0.69
Totals			2197.099	18520	164145		

File: 96112821.D07 Sample: S96T005454 DUP



LABCORE Completed Worklist Report for Worklist# 14070

Analyst: rag

Instrument: IC01

Book# 32 N20 D

Method: LA-533-105 Rev/Mod D-1

Worklist Comment: AY-102 IC. RCJ

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	⊗IC-QC F	QC	1	<1.20e-2		ug/mL
1 CCB	0	⊗IC-QC CL	QC	1	<1.70e-2		ug/mL
1 CCB	0	⊗IC-QC NO2	QC	1	<1.08e-1		ug/mL
1 CCB	0	⊗IC-QC BR	QC	1	<1.25e-1		ug/mL
1 CCB	0	⊗IC-QC NO3	QC	1	<1.33e-1		ug/mL
1 CCB	0	⊗IC-QC P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	⊗IC-QC S04	QC	1	<1.38e-1		ug/mL
1 CCB	0	⊗IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	⊗IC-QC F	QC	5.90e01	5.48e+01	92.881 % Recovery	
2 CCV	0	⊗IC-QC CL	QC	7.90e01	8.25e+01	104.430 % Recovery	
2 CCV	0	⊗IC-QC NO2	QC	5.39e02	5.30e+02	98.330 % Recovery	
2 CCV	0	⊗IC-QC BR	QC	5.89e02	6.07e+02	103.056 % Recovery	
2 CCV	0	⊗IC-QC NO3	QC	5.94e02	6.17e+02	103.872 % Recovery	
2 CCV	0	⊗IC-QC P04	QC	5.45e02	5.69e+02	104.404 % Recovery	
2 CCV	0	⊗IC-QC S04	QC	6.31e02	6.61e+02	104.754 % Recovery	
2 CCV	0	⊗IC-QC OXALATE2	QC	5.26e02	5.41e+02	102.852 % Recovery	
3 SAMPLE	S96T005455	⊗IC-01 F-02	LIQUID	N/A	4.476e+00	1.212	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 CL-02	LIQUID	N/A	1.141e+02	1.717	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 NO2-02	LIQUID	N/A	7.937e+02	10.910	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 BR-02	LIQUID	N/A	1.262e+01	12.620	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 NO3-02	LIQUID	N/A	4.151e+02	14.040	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 P04-02	LIQUID	N/A	5.383e+02	12.120	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 S04-02	LIQUID	N/A	2.680e+02	13.940	ug/mL
3 SAMPLE	S96T005455	⊗IC-01 OXALATE2	LIQUID	N/A	5.650e+01	10.610	ug/mL
4 DUP	S96T005455	⊗IC-01 F-02	LIQUID	4.48e+00	4.54e+00	1.330	RPD
4 DUP	S96T005455	⊗IC-01 CL-02	LIQUID	1.14e+02	1.13e+02	0.881	RPD
4 DUP	S96T005455	⊗IC-01 NO2-02	LIQUID	7.84e+02	7.72e+02	1.542	RPD
4 DUP	S96T005455	⊗IC-01 BR-02	LIQUID	<1.26e1	<1.26e1		RPD
4 DUP	S96T005455	⊗IC-01 NO3-02	LIQUID	4.15e+02	4.22e+02	1.673	RPD
4 DUP	S96T005455	⊗IC-01 P04-02	LIQUID	5.38e+02	5.63e+02	4.541	RPD
4 DUP	S96T005455	⊗IC-01 S04-02	LIQUID	2.68e+02	2.67e+02	0.374	RPD
4 DUP	S96T005455	⊗IC-01 OXALATE2	LIQUID	5.65e+01	5.50e+01	2.691	RPD
5 SPK	S96T005455	⊗IC-01 F-02	LIQUID	5.90e01	8.00e+01	135.593 % Recovery	
5 SPK	S96T005455	⊗IC-01 CL-02	LIQUID	7.90e01	8.89e+01	112.532 % Recovery	
5 SPK	S96T005455	⊗IC-01 NO2-02	LIQUID	5.39e02	5.84e+02	108.349 % Recovery	
5 SPK	S96T005455	⊗IC-01 BR-02	LIQUID	5.89e02	6.02e+02	102.207 % Recovery	
5 SPK	S96T005455	⊗IC-01 NO3-02	LIQUID	5.94e02	6.12e+02	103.030 % Recovery	
5 SPK	S96T005455	⊗IC-01 P04-02	LIQUID	5.45e02	5.84e+02	107.156 % Recovery	
5 SPK	S96T005455	⊗IC-01 S04-02	LIQUID	6.31e02	6.47e+02	102.536 % Recovery	
5 SPK	S96T005455	⊗IC-01 OXALATE2	LIQUID	5.26e02	5.45e+02	103.612 % Recovery	
6 SAMPLE	S96T005456	⊗IC-01 F-02	LIQUID	N/A	4.383e+00	1.212	ug/mL

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 14070

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S96T005456	0	②IC-01 CL-02	LIQUID	N/A	1.155e+02	1.717	ug/mL
6 SAMPLE	S96T005456	0	②IC-01 NO2-02	LIQUID	N/A	7.962e+02	10.910	ug/mL
6 SAMPLE	S96T005456	0	②IC-01 BR-02	LIQUID	N/A	1.262e+01	12.620	ug/mL
6 SAMPLE	S96T005456	0	②IC-01 NO3-02	LIQUID	N/A	4.313e+02	14.040	ug/mL
6 SAMPLE	S96T005456	0	②IC-01 PO4-02	LIQUID	N/A	5.370e+02	12.120	ug/mL
6 SAMPLE	S96T005456	0	②IC-01 SO4-02	LIQUID	N/A	2.758e+02	13.940	ug/mL
6 SAMPLE	S96T005456	0	②IC-01 OXALATE2	LIQUID	N/A	5.952e+01	10.610	ug/mL
7 DUP	S96T005456	0	②IC-01 F-02	LIQUID	4.38e+00	4.12e+00	6.118	RPD
7 DUP	S96T005456	0	②IC-01 CL-02	LIQUID	1.16e+02	1.18e+02	1.709	RPD
7 DUP	S96T005456	0	②IC-01 NO2-02	LIQUID	7.96e+02	7.93e+02	0.378	RPD
7 DUP	S96T005456	0	②IC-01 BR-02	LIQUID	<1.26e1	<1.26e1		RPD
7 DUP	S96T005456	0	②IC-01 NO3-02	LIQUID	4.31e+02	4.24e+02	1.637	RPD
7 DUP	S96T005456	0	②IC-01 PO4-02	LIQUID	5.37e+02	5.81e+02	7.871	RPD
7 DUP	S96T005456	0	②IC-01 SO4-02	LIQUID	2.76e+02	2.67e+02	3.315	RPD
7 DUP	S96T005456	0	②IC-01 OXALATE2	LIQUID	5.95e+01	5.89e+01	1.014	RPD

Final page for worklist# 14070

Analyst Signature _____ Date _____

Shirley M. Greene 12-9-96
Analyst Signature Date

James M. Lyle 12/11/96
Reviewer Signature Date

Uploaded 12-9-96 14070NV.CSV

Validated 12/10/96 JMR

LABCORE Data Entry Template for Worklist# 14070

Analyst: RAJ Instrument: IC0 IC01 Book# 32N20-D

Method: LA-533-105 Rev/Mod D-1

Worklist Comment: AY-102 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	SAMPLE	S96T005455 0			@IC-01	LIQUID	96001366	AY-102 GRAB
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S96T005455 0			@IC-01	LIQUID		
5	SPK	S96T005455 0			@IC-01	LIQUID		
6	SAMPLE	S96T005456 0			@IC-01	LIQUID	96001366	AY-102 GRAB
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7	DUP	S96T005456 0			@IC-01	LIQUID		

Final page for worklist # 14070

Rae Ann Green 11-30-96
Analyst Signature Date

Daniel M. Gailana 12-9-96
Analyst Signature Date

Uploaded 12-9-96 14070NV.csv

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				09-Dec-96			
Worklist#: 14070				Data File: 14070NV.CSV							
		Seq	Type	Sample #	Seq#		Data File	Sample Name		Dilution	
-	=>	1	CCB	S96T005455	-	1	96112911.d07	CCB	1.00		
	=>	2	CCV			2	96112911.d09	CCV 32N20-D	101.00		
	=>	3	SAMPLE			3	96112911.d10	S96T005455	101.00		
	=>	4	DUP			4	96112911.d11	S96T005455 DUP	101.00		
	=>	5	SPK			5	96112911.d12	S96T005455 SPIKE	101.00		
	=>	6	SAMPLE			6	96112911.d13	S96T005456	101.00		
	=>	7	DUP			7	96112911.d14	S96T005456 DUP	101.00		
+					+						

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

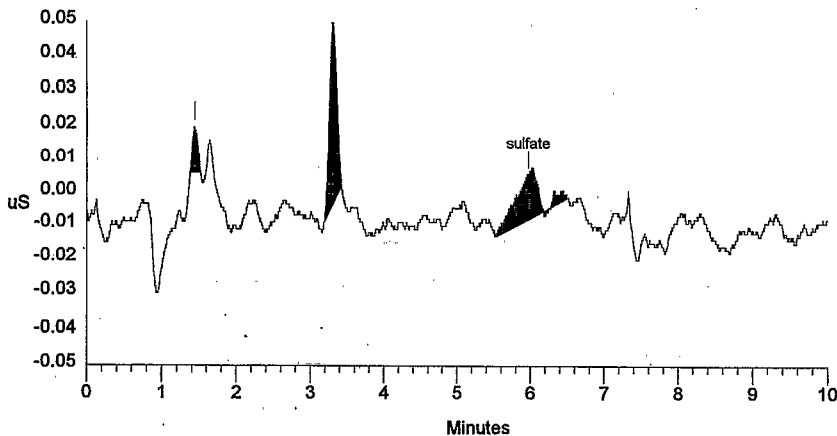
Sample Name: CCB Date: 11/30/1996 08:43:03
Data File : C:\DX\DATA\96112911.D07
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7 Detector: CDM-1
Analyst : *Rae Ann Hren* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.44		0.000	14	70	1	
2	3.31		0.000	53	366	1	
3	5.97	sulfate	0.092	13	308	1	0.90
Totals			0.092	80	744		

File: 96112911.D07 Sample: CCB



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 109 TO 115.

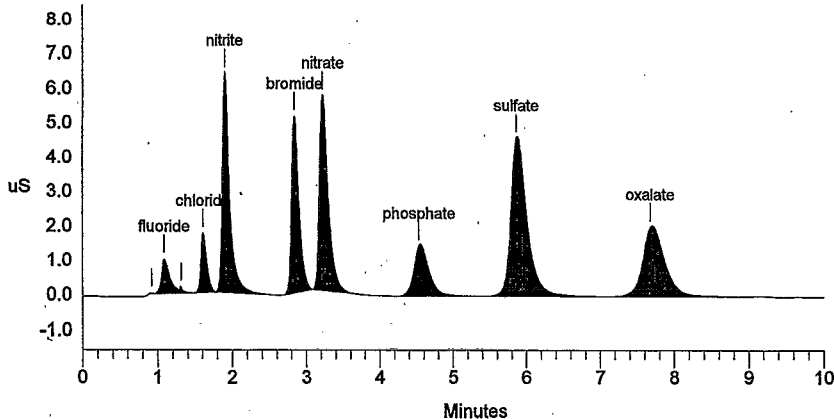
Sample Name: CCV 32N20-D Date: 11/30/1996 08:54:09
 Data File : C:\DX\DATA\96112911.D09
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 9 Detector: CDM-1
 Analyst : *Rae Ann Dunn* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.09	fluoride	54.765	1008	7868	3	-1.21
3	1.31		0.000	112	306	4	
4	1.61	chloride	82.490	1724	9435	1	1.69
5	1.90	nitrite	529.634	6355	43089	1	-0.52
6	2.84	bromide	607.250	5140	35588	1	3.65
7	3.22	nitrate	616.858	5660	47285	1	5.57
8	4.53	phosphate	569.459	1451	21364	1	-1.23
9	5.87	sulfate	661.187	4601	70279	1	-0.90
10	7.68	oxalate	541.039	2014	42072	1	0.00
Totals			3662.681	28066	277286		

File: 96112911.D09 Sample: CCV 32N20-D



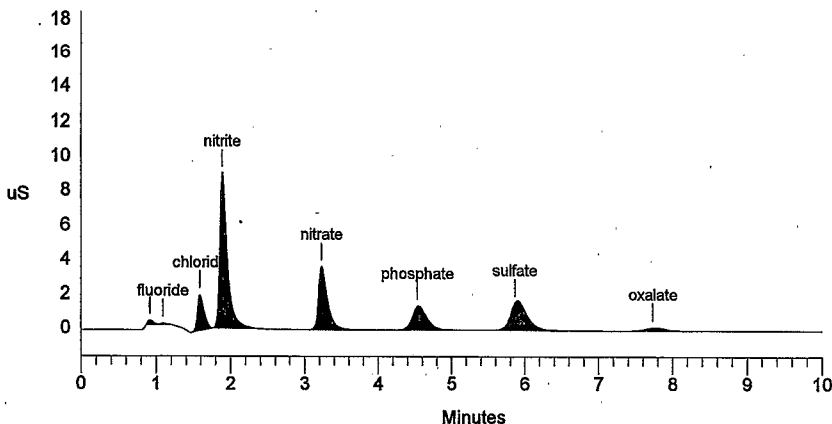
Sample Name: S96T005455 Date: 11/30/1996 09:05:03
 Data File : C:\DX\DATA\96112911.D10
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 10 Detector: CDM-1
 Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	259	1327	2	
2	1.09	fluoride	4.476	76	288	2	-0.61
3	1.59	chloride	114.108	2088	13041	1	0.42
4	1.89	nitrite	783.722	8982	64602	1	-1.22
5	3.23	nitrate	415.070	3660	31355	1	5.79
6	4.53	phosphate	538.295	1375	20159	1	-1.23
7	5.87	sulfate	267.962	1588	27754	1	-0.90
8	7.73	oxalate	56.496	191	3918	1	0.69
Totals			2180.128	18220	162444		

File: 96112911.D10 Sample: S96T005455



Sample Name: S96T005455 DUP

Date: 11/30/1996 09:17:49

Data File : C:\DX\DATA\96112911.D11

Method : C:\DX\METHOD\KIT.MET

ACI Address: 1 System: 1 Inject#: 11

Detector: CDM-1

Analyst : *Rae Ann Shun* Column: AG4A/AS4A anion column

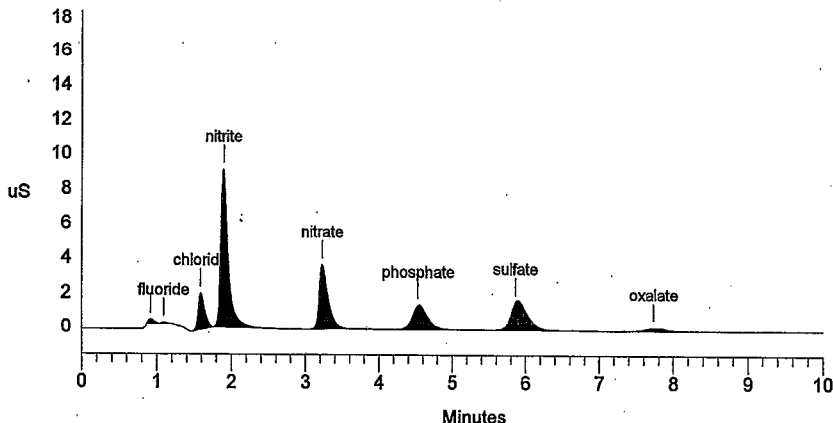
Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
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External	1	101	3000	5Hz	0.00	10.00		50
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***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	269	1433	2	
2	1.09	fluoride	4.539	76	297	2	-0.61
3	1.59	chloride	112.840	2127	12895	1	0.42
4	1.89	nitrite	772.301	9113	63629	1	-0.87
5	3.23	nitrate	421.565	3699	31865	1	5.79
6	4.53	phosphate	563.029	1413	21115	1	-1.23
7	5.87	sulfate	267.266	1629	27680	1	-0.90
8	7.73	oxalate	54.955	190	3798	1	0.69
Totals			2196.494	18516	162712		

File: 96112911.D11 Sample: S96T005455 DUP



Sample Name: S96T005455 SPIKE Date: 11/30/1996 10:47:19
Data File : C:\DX\DATA\96112911.D12
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 12 Detector: CDM-1
Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

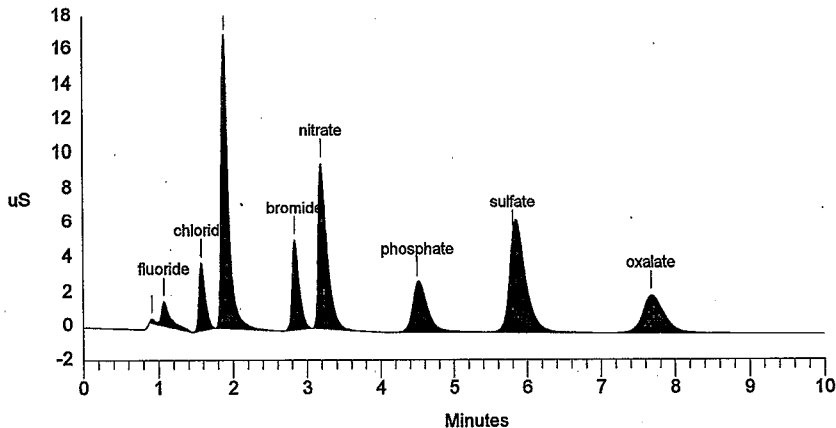
Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 101 3000 5Hz 0.00 10.00 50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	240	1089	2	
2	1.07	fluoride	84.482	1442	12491	2	-2.42
3	1.58	chloride	202.963	3933	23455	1	0.00
4	1.89	nitrite	1367.916	16991	115173	1	-0.87
5	2.84	bromide	601.657	5203	35250	1	3.65
6	3.20	nitrate	1027.501	9590	80285	1	4.92
7	4.51	phosphate	1122.374	2958	43200	1	-1.82
8	5.81	sulfate	915.379	5707	98315	1	-1.80
9	7.68	oxalate	601.400	2251	46869	1	0.00
Totals			5923.671	48316	456127		

File: 96112911.D12 Sample: S96T005455 SPIKE



Sample Name: S96T005456

Date: 11/30/1996 10:58:51

Data File : C:\DX\DATA\96112911.D13

Method : C:\DX\METHOD\KIT.MET

ACI Address: 1 System: 1 Inject#: 13

Detector: CDM-1

Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

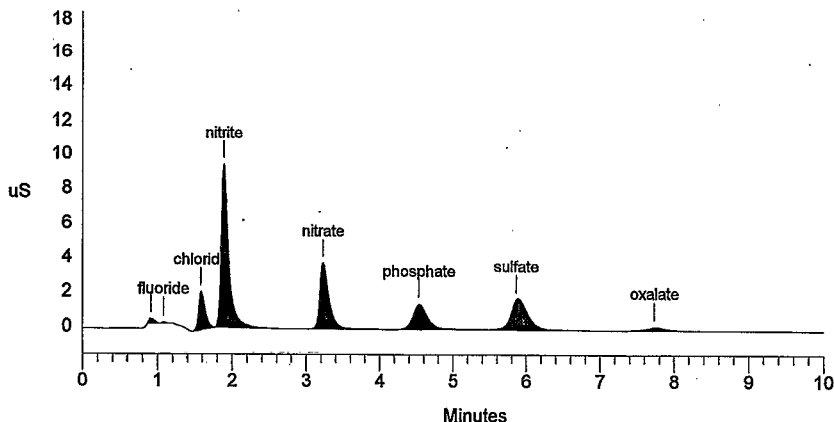
Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
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External	1	101	3000	5Hz	0.00	10.00		50
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***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	283	1437	2	
2	1.08	fluoride	4.383	.70	274	2	-1.82
3	1.58	chloride	115.515	2146	13202	1	0.00
4	1.89	nitrite	796.156	9419	65662	1	-1.22
5	3.23	nitrate	431.269	3758	32627	1	5.79
6	4.53	phosphate	536.980	1416	20108	1	-1.23
7	5.87	sulfate	275.804	1719	28592	1	-0.90
8	7.73	oxalate	59.516	195	4154	1	0.69
Totals			2219.624	19005	166057		

File: 96112911.D13 Sample: S96T005456



=====

Sample Name: S96T005456 DUP	Date: 11/30/1996 11:11:10
Data File : C:\DX\DATA\96112911.D14	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 14	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	Column: AG4A/AS4A anion column

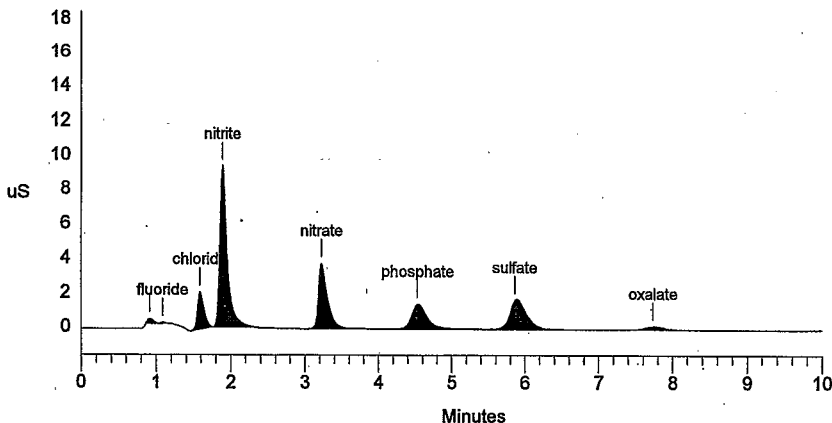
=====

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91	0.000	271	1403	2	
2	1.09 fluoride	4.125	64	236	2	-1.21
3	1.59 chloride	118.005	2184	13489	1	0.42
4	1.89 nitrite	793.102	9347	65402	1	-1.22
5	3.23 nitrate	423.845	3779	32044	1	5.79
6	4.53 phosphate	580.504	1440	21792	1	-1.23
7	5.87 sulfate	266.714	1681	27621	1	-0.90
8	7.73 oxalate	58.936	198	4109	1	0.69
Totals		2245.230	18963	166095		

File: 96112911.D14 Sample: S96T005456 DUP



10/17/96 12:14
A-0004-1

FILE # 08612028.TXF

HNF-SD-WM-DP-222, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 14101

Analyst: B. GOECKE Instrument: ICP01 Book# 648484
 Method: LA-505 ¹⁵¹161 Rev/Mod B-1
 Worklist Comment: ICP AY-102 (DIRECT)

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 ICV			@ICP-QC	QC		
2 ICB			@ICP-QC	QC		
3 LLS			@ICP-QC	QC		
4 ICSA			@ICP-QC	QC		
5 ICSAB			@ICP-QC	QC		
6 SERDIL	S96T005366	0 D	@ICP-D01	LIQUID		
7 SAMPLE	S96T005366	0 D	@ICP-D01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01						
8 DUP	S96T005366	0 D	@ICP-D01	LIQUID		
9 SPK	S96T005366	0 D	@ICP-D01	LIQUID		
10 CCV			@ICP-QC	QC		
11 CCB			@ICP-QC	QC		
12 SAMPLE	S96T005454	0 D	@ICP-D01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01						

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

10/17/96 12:14
A-0004-1

HNF-SD-WM-DP-222, REV. 0

Page: 2

LABCORE Data Entry Template for Worklist# 14101

S Type	Sample#	R A	Test	Matrix	Group#	Project
13 DUP	S96T005454	0 D	@ICP-D01	LIQUID		
14 SAMPLE	S96T005455	0 D	@ICP-D01	LIQUID	96001366 AY-102	GRAB
Analytes Requested: AG-D-01, AL-D-01, AS-D-01, B-D-01, BA-D-01, BE-D-01, BI-D-01, CA-D-01, CD-D-01, CE-D-01, CO-D-01, CR-D-01, CU-D-01, FE-D-01, K-D-01, LA-D-01, LI-D-01, MG-D-01, MN-D-01, MO-D-01, NA-D-01, ND-D-01, NI-D-01, P-D-01, PB-D-01, S-D-01, SB-D-01, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01						
15 DUP	S96T005455	0 D	@ICP-D01	LIQUID		
16 SAMPLE	S96T005456	0 D	@ICP-D01	LIQUID	96001366 AY-102	GRAB
Analytes Requested: AG-D-01, AL-D-01, AS-D-01, B-D-01, BA-D-01, BE-D-01, BI-D-01, CA-D-01, CD-D-01, CE-D-01, CO-D-01, CR-D-01, CU-D-01, FE-D-01, K-D-01, LA-D-01, LI-D-01, MG-D-01, MN-D-01, MO-D-01, NA-D-01, ND-D-01, NI-D-01, P-D-01, PB-D-01, S-D-01, SB-D-01, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01						
17 DUP	S96T005456	0 D	@ICP-D01	LIQUID		
18 ICSA			@ICP-QC	QC		
19 ICSAB			@ICP-QC	QC		
20 CCV			@ICP-QC	QC		
21 CCB			@ICP-QC	QC		

Final page for worklist # 14101

Analyst Signature	Date	DF	Analyst Signature	Date	DF
<i>S. J. Jones</i>	12-02-96		<i>Sam M. Paro</i>	12/2/96	
S96T005366-L	.5ml - 2.5ml - 2ml - 2ml	100	S96T005454	.5ml - 2.5ml	20
S366	.5ml - 2.5ml	20	S454-D	.5ml - 2.5ml	20
S366-D	.5ml - 2.5ml	20	S96T005455	.5ml - 2.5ml	20
S366-H	.5ml - 2ml (3475) - 2.5ml	20	S455-D	.5ml - 2.5ml	20
S366-X	.05ml - 2.55ml	200	S96T005456	.5ml - 2.5ml	20
S366-AK	.05ml - 1ml - 2ml (4114) - 2.55ml	200	S456-D	.5ml - 2.5ml	20

Data Entry Comments:

Spike recovery calculation:

$$S96T005366 \quad \text{all} = \left(\frac{35.62}{20} \right) - \left(\frac{15.83}{20} \right) \times 100 = 99.0\%$$

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Spike true value is 1.0 ppm for all elements except for U = 2.0 ppm.

Analysis Report

Summary

HNF-SD-WM-DP-222, REV. 0
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#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	961202B	ICP2	12/02/96	09:50	BJG	Q	CONC
2	ICB	961202B	ICP2	12/02/96	09:53	BJG	Q	CONC
3	LLS	961202B	ICP2	12/02/96	09:56	BJG	Q	CONC
4	ICSA	961202B	ICP2	12/02/96	09:59	BJG	Q	CONC
5	IC SAB	961202B	ICP2	12/02/96	10:03	BJG	Q	CONC
6	S96T005366 L	961202B	ICP2	12/02/96	10:06	BJG	S	CONC
7	S96T005366	961202B	ICP2	12/02/96	10:09	BJG	S	CONC
8	S96T005366 D	961202B	ICP2	12/02/96	10:13	BJG	S	CONC
9	S96T005366 A	961202B	ICP2	12/02/96	10:16	BJG	S	CONC
10	S96T005366 X	961202B	ICP2	12/02/96	10:20	BJG	S	CONC
11	S96T005366 AX	961202B	ICP2	12/02/96	10:24	BJG	S	CONC
12	CCV	961202B	ICP2	12/02/96	10:27	BJG	Q	CONC
13	CCB	961202B	ICP2	12/02/96	10:31	BJG	Q	CONC
14	S96T005454	961202B	ICP2	12/02/96	10:42	BJG	S	CONC
15	S96T005454 D	961202B	ICP2	12/02/96	10:45	BJG	S	CONC
16	S96T005455	961202B	ICP2	12/02/96	10:48	BJG	S	CONC
17	S96T005455 D	961202B	ICP2	12/02/96	10:51	BJG	S	CONC
18	S96T005456	961202B	ICP2	12/02/96	10:54	BJG	S	CONC
19	S96T005456 D	961202B	ICP2	12/02/96	10:57	BJG	S	CONC
20	ICSA	961202B	ICP2	12/02/96	11:00	BJG	Q	CONC
21	IC SAB	961202B	ICP2	12/02/96	11:03	BJG	Q	CONC
22	CCV	961202B	ICP2	12/02/96	11:06	BJG	Q	CONC
23	CCB	961202B	ICP2	12/02/96	11:09	BJG	Q	CONC

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 119 TO 122.

[Signature]

12-02-96

AY-102

596T005366

S96T005366, S96T005454, S96T005455, S96T005456

FILE # 081202B.TXT

Na failed in the first post spike. A second post spike
 was made and the result is:

$$Na = \frac{(9006)}{200} - \frac{(6709)}{200} \times 100 = 114.85\%$$

10

HNF-SD-WM-DP-222, REV. 0

Analysis Report

Averages

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	5.121	5.071	5.315	5.098	5.157	5.312
2	ICB	.0008	.0124	.0041	-.0005	.0001	.0004
3	LLS	.0215	.1134	.2226	.0999	.1018	.0107
4	ICSA	.0018	248.8	-.0242	-.0098	.0018	.0004
5	ICSAB	.9782	248.7	-.0160	-.0004	.4846	.4871
6	S96T005366 L	.6171	17.14	.8532	13.89	.1242	.0296
7	S96T005366	.5033	15.83	.3616	14.00	.1215	.0042
8	S96T005366 D	.4891	15.73	.7619	13.93	.1201	.0041
9	S96T005366 A	19.43	35.63	21.77	33.90	19.93	20.72
10	S96T005366 X	1.241	16.08	2.471	13.32	.1043	.0954
11	S96T005366 AX	1.996	1999.	2.115	2004.	2079.	2126.
12	CCV	5.102	5.011	5.333	5.012	5.096	5.241
13	CCB	.0000	.0095	.0180	.0009	.0000	.0005
14	S96T005454	.4942	15.49	.4499	13.49	.0412	.0067
15	S96T005454 D	.5021	15.91	.4493	13.53	.0412	.0067
16	S96T005455	.4749	15.48	.3618	10.97	.0069	.0076
17	S96T005455 D	.4531	14.46	.3187	10.35	.0097	.0058
18	S96T005456	.4382	14.56	.1614	11.89	.0688	.0040
19	S96T005456 D	.4494	14.93	.4920	12.43	.0686	.0050
20	ICSA	.0008	240.3	-.0022	-.0019	.0018	.0005
21	ICSAB	.9707	247.1	-.0130	-.0069	.4839	.4867
22	CCV	5.096	5.043	5.286	5.081	5.164	5.315
23	CCB	.0001	.0149	.0114	-.0005	.0002	.0007

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.241	5.110	5.162	5.157	5.090	5.202
2	ICB	-.0089	.0031	.0015	.0022	-.0003	.0007
3	LLS	.2130	.2143	Q.0126	.2096	.0435	.0220
4	ICSA	.0277	253.5	.0021	.0146	.0021	.0117
5	ICSAB	.0280	253.6	.9507	.0071	.4683	.4853
6	S96T005366 L	.6231	.3063	.2009	.0475	.0145	20.40
7	S96T005366	-.2028	.0435	.0650	-.1301	.0353	19.99
8	S96T005366 D	-.3572	.0475	.0743	-.1284	.0383	20.13
9	S96T005366 A	20.49	20.48	20.31	20.28	19.97	40.70
10	S96T005366 X	-3.358	-.4249	.1542	-.5865	-.3402	19.72
11	S96T005366 AX	2085.	2030.	2024.	2051.	3.196	2062.
12	CCV	5.234	5.160	5.144	5.090	5.082	5.194
13	CCB	-.0081	.0015	.0000	-.0049	.0017	-.0006
14	S96T005454	-.0196	.0369	.0862	-.0542	.0133	19.67
15	S96T005454 D	.1571	.0885	.0849	-.0695	-.0114	19.86
16	S96T005455	.2689	-.0460	.0624	-.1662	.0555	20.13
17	S96T005455 D	-.2888	.0995	.0775	.0109	.0023	19.69
18	S96T005456	.0420	.1757	.0791	.0719	-.0048	19.61
19	S96T005456 D	-.6392	.1959	.0686	.0008	.0287	19.60
20	ICSA	-.0005	254.9	.0022	.0245	.0001	.0100
21	ICSAB	-.0343	251.4	.9432	.0103	.4608	.4848
22	CCV	5.245	5.138	5.152	5.153	5.075	5.186
23	CCB	.0326	.0020	.0007	.0041	-.0003	.0007

Analysis Report

Averages

HNF-SD-WM-DP-222, REV. 0

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#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.302	-.0018	5.169	5.024	5.247	5.262
2	ICB	-.0002	-.0006	.0003	-.0155	.0007	-.0005
3	LLS	.0213	.0007	.1037	.4893	.1052	.0219
4	ICSA	-.0095	-.0331	95.31	.0475	-.0046	.0028
5	ICSAB	.4827	-.0307	94.87	.0444	-.0049	1.057
6	S96T005366_L	.3910	-.0496	-.0536	348.4	.0312	.8777
7	S96T005366_D	.2355	-.0284	.0029	332.7	.0139	.8845
8	S96T005366_A	.2082	-.0107	-.0034	326.7	.0014	.8983
9	S96T005366_X	20.66	-.0187	20.09	354.3	20.51	21.37
10	S96T005366_AX	.5388	.0640	-.3675	293.8	-.0666	.8541
11	CCV	-.0732	.5835	.2016	.2324	.2084	.2089
12	CCB	5.201	-.0008	5.113	5.069	5.164	5.128
13	S96T005454	-.0002	-.0002	.0000	-.0526	-.0006	.0001
14	S96T005454_D	.2047	-.0228	.0134	322.5	-.0021	.8521
15	S96T005455	.2176	-.0253	.3038	328.7	.0066	.8706
16	S96T005455_D	.2087	-.0184	.0956	332.9	-.0147	.8706
17	S96T005455_A	.2034	.0458	.1065	304.4	.0302	.8520
18	S96T005456	.1555	.0615	.0793	303.9	.0208	.8612
19	S96T005456_D	.2000	.0074	.0906	310.1	.0158	.8636
20	ICSA	-.0098	-.0419	93.47	.1760	-.0043	.0040
21	ICSAB	.4825	-.0282	94.17	.0343	-.0046	1.054
22	CCV	5.287	-.0015	5.115	4.865	5.245	5.237
23	CCB	.0000	-.0004	.0002	-.0347	.0001	-.0006

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.993	5.040	5.096	5.056	5.239	5.172
2	ICB	.0003	.0002	.0054	-.0029	-.0018	.0030
3	LLS	.2006	.0206	.0983	.2143	.2032	.0457
4	ICSA	259.0	-.0064	-.0009	200.4	.0100	.0026
5	ICSAB	258.0	.4501	-.0049	200.0	.0099	.9373
6	S96T005366_L	.7002	-.0114	.4270	7101.	.0434	1.062
7	S96T005366_D	-.7108	-.0045	.1884	6886.	.0196	.1151
8	S96T005366_A	-.5851	.0012	.2278	6805.	-.0530	.2651
9	S96T005366_X	18.38	19.32	20.31	6881.	20.38	20.39
10	S96T005366_AX	-.7268	.0538	.1896	6709.	-.5319	.1402
11	CCV	.2047	.2013	.1957	.9006	.2076.	.2026
12	CCB	4.893	5.041	5.057	4.887	5.132	5.128
13	S96T005454	-.0002	.0003	.0012	-.0037	.0008	-.0017
14	S96T005454_D	-.5885	-.0023	.2237	6683.	-.0267	.1985
15	S96T005455	-.6124	-.0029	.1923	6795.	-.0048	.1988
16	S96T005455_D	-.6513	.0027	.2031	6757.	-.0168	.2680
17	S96T005455_A	-.5753	.0214	.1833	6191.	.0510	.3776
18	S96T005456	-.6912	.0250	.2081	6134.	-.0403	.2410
19	S96T005456_D	-.6197	.0077	.2208	6428.	-.0019	.2559
20	ICSA	.249.7	-.0054	-.0127	187.3	.0049	-.0127
21	ICSAB	255.5	.4459	-.0023	196.6	.0057	.9156
22	CCV	4.913	5.016	5.079	4.930	5.213	5.170
23	CCB	.0012	.0004	.0031	-.0021	-.0010	.0041

HNF-SD-WM-DP-222, REV. 0

Analysis Report

Averages

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.156	5.142	5.023	4.848	4.974	4.901
2	ICB	- .0167	- .0039	.0130	- .0021	.0210	- .0074
3	LLS	.3718	.2202	.2047	.0898	.2369	.1356
4	ICSA	.0027	.0458	.0051	.0005	- .0245	- .0081
5	ICSA B	.0099	1.026	- .0197	.0093	- .0222	- .0129
6	S96T005366_L	186.7	- .9281	99.56	.1785	3.891	107.5
7	S96T005366_	189.4	.2341	94.82	.0211	2.206	105.6
8	S96T005366_D	188.8	.1031	94.21	.0511	2.850	105.7
9	S96T005366_A	209.2	20.09	114.8	19.09	24.48	125.7
10	S96T005366_X	176.7	- 2.061	95.98	- 1.346	10.44	103.5
11	S96T005366_AX	224.5	.2072	2087.	1987.	2008.	2109.
12	CCV	4.962	5.145	4.929	4.827	4.988	4.869
13	CCB	- .0245	.0111	.0047	- .0041	.0420	- .0029
14	S96T005454	184.0	.0671	91.84	-.0366	2.710	102.1
15	S96T005454_D	186.6	- .2415	94.10	- .1774	2.434	103.5
16	S96T005455_	190.7	- .0568	94.81	- .1260	2.592	90.70
17	S96T005455_D	178.8	- .0712	90.68	- .1408	3.339	87.49
18	S96T005456_	179.2	- .2624	91.60	- .0357	3.505	94.50
19	S96T005456_D	184.8	- .0554	92.15	.0094	3.089	94.70
20	ICSA	- .0016	.0383	- .0009	- .0213	.0277	.0013
21	ICSA B	.0020	1.009	- .0250	.0011	- .0148	- .0155
22	CCV	5.011	5.116	4.969	4.830	5.020	4.844
23	CCB	- .0194	- .0152	.0004	- .0044	.0496	- .0065

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	5.083	5.096	.0561	4.942	5.011	9.781
2	ICB	- .0087	.0000	.0064	- .0002	- .0277	- .0220
3	LLS	.2152	.0208	.0059	.0198	.3980	.5184
4	ICSA	- .0040	.0018	.0013	.0007	- .0096	- .0192
5	ICSA B	- .0018	.0022	.0020	.0007	- .0172	- .0447
6	S96T005366_L	- .7787	- .0120	.6087	.0157	- .9911	18.63
7	S96T005366_	- .2481	.0003	- .0995	.0180	- .3243	19.70
8	S96T005366_D	- .0186	.0022	- .2012	.0026	.1543	21.66
9	S96T005366_A	19.71	19.75	.0981	19.50	18.99	59.60
10	S96T005366_X	4277	.0184	.0084	- .0128	- 4.248	26.21
11	S96T005366_AX	2028.	2027.	12.56	1837.	1953.	165.3
12	CCV	5.009	4.995	.0660	4.915	5.028	9.624
13	CCB	- .0017	.0000	.0006	- .0002	- .0167	- .0056
14	S96T005454	- .1900	.0023	- .2009	.0076	- .1627	20.63
15	S96T005454_D	- .2245	.0003	- .1201	.0032	- .4727	20.43
16	S96T005455_	.0182	.0013	- .1959	.0029	- .2612	21.07
17	S96T005455_D	.7506	.0145	- .2482	- .0021	- .2062	23.20
18	S96T005456_	.9401	.0176	- .4340	.0067	- .3950	23.93
19	S96T005456_D	.2414	.0074	- .3143	.0121	- .4246	21.79
20	ICSA	.0203	.0016	.0185	.0006	.0088	- .0274
21	ICSA B	- .0128	.0021	- .0001	.0005	.0258	- .0747
22	CCV	5.097	5.082	.0673	4.960	4.965	9.764
23	CCB	- .0039	.0001	.0039	- .0005	- .0000	- .0137

HNF-SD-WM-DP-222, REV. 0

Analysis Report

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#	Sample Name	V	Y	Zn	Zr
1	ICV	5.081	.0064	5.094	4.999
2	ICB	-.0018	-.0004	.0008	-.0015
3	LLS	.1039	.0006	.0234	.0216
4	ICSA	-.0006	.0070	.0054	-.0029
5	ICSAB	.4664	.0071	.9499	-.0034
6	S96T005366_L	-.1457	-.0471	.3222	-.1009
7	S96T005366_D	-.0243	-.0131	.1837	-.0148
8	S96T005366_D	.0165	-.0092	.1912	.0185
9	S96T005366_A	19.93	.0201	20.25	19.48
10	S96T005366_X	.2468	-.0111	.3722	.1101
11	S96T005366_AX	1.238	2.877	-6.567	2008.
12	CCV	5.057	.0070	5.093	4.935
13	CCB	-.0004	-.0003	.0006	-.0004
14	S96T005454	-.0110	-.0119	.1870	.0127
15	S96T005454_D	-.0182	-.0150	.1846	-.0071
16	S96T005455	.0102	-.0090	.1810	-.0024
17	S96T005455_D	.1681	.0325	.1868	.1175
18	S96T005456	.2003	.0416	.1695	.1795
19	S96T005456_D	.0679	.0080	.1654	.0755
20	ICSA	.0043	.0080	.0057	-.0016
21	ICSAB	.4633	.0065	.9413	-.0038
22	CCV	5.077	.0063	5.067	4.982
23	CCB	-.0013	-.0002	.0015	-.0006

LABCORE Completed Worklist Report for Worklist# 14068

Analyst: dpb

Instrument: TOC01

Book# 24112E

Method: LA-344-105 Rev/Mod D-1

Worklist Comment: AY-102 TOC. RCJ

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK	0		TOC-01	LIQUID	1.40E+0	1.40E+0	1.400	ug/mL
2	STD	0		TOC-01	LIQUID	3.00E+03	2.71E+3	90.333 % Recovery	
3	SAMPLE	S96T005455	0	TOC-01	LIQUID	N/A	1.42E+02	5.500	ug/mL
4	DUP	S96T005455	0	TOC-01	LIQUID	1.42E+02	1.25E+02	12.734	RPD
5	SPK	S96T005455	0	TOC-01	LIQUID	1.00E+02	8.21E+01	82.100 % Recovery	
6	SAMPLE	S96T005456	0	TOC-01	LIQUID	N/A	9.85E+01	5.500	ug/mL
7	DUP	S96T005456	0	TOC-01	LIQUID	9.85E+01	9.24E+01	6.391	RPD

Final page for worklist# 14068

see attached
Analyst Signature _____ Date _____

see attached
Analyst Signature _____ Date _____

data entry corrected & validated into Labcore
Reviewer Signature _____ Date _____

12/12/96

LABCORE Completed Worklist Report for Worklist# 14068

Analyst: dpb

Instrument: TOC01

Book# 24N12E

Method: LA-344-105 Rev/Mod D-1

Worklist Comment: AY-102 TOC. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		TOC-01	LIQUID	1	1.40E+0	1.400	ug/mL
2 STD	0		TOC-01	LIQUID	3.00E+03	2.71E+3	90.333 % Recovery	
3 SAMPLE	S96T005455	0	TOC-01	LIQUID	N/A	1.42E+02	5.500	ug/mL
4 DUF	S96T005455	0	TOC-01	LIQUID	1.25E+2	1.25E+2	100.000 % Recovery	
5 SPK	S96T005455	0	TOC-01	LIQUID	1.00E+02	1.00E+02	100.000 % Recovery	
6 SAMPLE	S96T005456	0	TOC-01	LIQUID	N/A	9.85E+01	5.500	ug/mL
7 DUF	S96T005456	0	TOC-01	LIQUID	9.85E+1	9.24E+1	6.391	RED

Final page for worklist# 14068

See attached

Analyst Signature Date

21/1/96 12/10/96

Analyst Signature Date

Reviewer Signature Date

data entry incorrect. Changes by John McCluskey
12/12/96

10/16/96 11:16
A-0004-1

HNF-SD-WM-DP-222, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 14068Analyst: DPB Instrument: TOC01 _____ Book# 24N12-EMethod: LA-344-105 Rev/Mod D-1

Worklist Comment: AY-102 TOC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TOC-01	LIQUID		
2 STD			TOC-01	LIQUID		
3 SAMPLE	S96T005455 0		TOC-01	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: TOC-01					
4 DUP	S96T005455 0		TOC-01	LIQUID		
5 SPK	S96T005455 0		TOC-01	LIQUID		
6 SAMPLE	S96T005456 0		TOC-01	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: TOC-01					
7 DUP	S96T005456 0		TOC-01	LIQUID		

Final page for worklist # 14068

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKLIST
#ANALYST
INITIALSANALYSIS
DATEANALYSIS
TIMEINSTRUMENT
CODE

14068

DPB

12/10/96

☒ BASELINE
BLANK

☐ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

0.5 m H₂SO₄ used with all base lines, standards and blanks
☐ BASELINE
BLANK

☐ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

2.4N12-E

2 mL

53.9 mg

☒ BASELINE
BLANK

☐ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

2.3 mg

☐ BASELINE
BLANK

☒ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

30.16 mg

2.0 m H₂SO₄ used with all samples, dupes and spikes
☐ BASELINE
BLANK

☐ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

596T005455

2 mL

2 mL

27.7 mg

☐ BASELINE
BLANK

☐ SAMPLE
DUPLICATE

☒ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

596T005455

4 mL

2 mL

SPK # = 23N12-B

64.5 mg

☐ BASELINE
BLANK

☒ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

596T005456

2 mL

2 mL

22.6 mg

☐ BASELINE
BLANK

☒ SAMPLE
DUPLICATE

☐ SPIKE
PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE

ALICUOT OF SPARGED SAMPLE TO BE SPIKED

SPIKE VOL. (mL)

H2SO4 VOL. ADDED TO SAMPLE+SPIKE

596T005456

2 mL

2 mL

21.5 mg

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 24N12-E

Date: 12/10/96

Time: 02:20:32

Sample Size = 200 uL

Dil Factor = 11

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.51	0.10	0.00
2	1.01	14.90	99.33
3	1.50	37.00	59.73
4	2.00	44.60	17.04
5	2.50	48.10	7.28
6	3.00	50.10	3.99
7	3.50	51.10	1.96
8	4.00	52.00	1.73
9	4.50	52.40	0.76
10	5.01	52.80	0.76
11	5.50	53.10	0.56
12	6.01	53.40	0.56
13	6.50	53.60	0.37
14	7.00	53.90	0.56

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(53.9 - 4.693241) (11)/(200) =

+2.71E+00 g/L Carbon

(53.9 - 4.693241) (11)/(200) (12) =

+2.26E-01 Molar Carbon

Sample Run By:

12/16/96
RW Schroed for DP Bromley
DP-BROMLEY XXXXX

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 127 TO 111.

HNF-SD-WM-DP-222, REV. 0
TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK

Date: 12/10/96

Time: 02:30:22

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.40	75.00
3	1.51	0.80	50.00
4	2.00	1.00	20.00
5	2.51	1.30	23.08
6	3.01	1.50	13.33
7	3.51	1.70	11.76
8	4.01	1.90	10.53
9	4.51	2.10	9.52
10	5.01	2.40	12.50
11	5.51	2.70	11.11
12	6.01	2.90	6.90
13	6.50	3.00	3.33
14	7.00	3.30	9.09

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(3.3 - 4.693129) (1)/(200) =

< 5.00 E-3 g/L Carbon

(3.3 - 4.693129) (1)/(200) (12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

DP BROMLEY

XXXXX

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 12/09/96

Time: 20:26:38

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BASE

Blank Value = N/A

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.50	1.00	40.00
4	2.00	1.50	33.33
5	2.50	1.70	11.76
6	3.00	2.10	19.05
7	3.50	2.40	12.50
8	4.00	2.80	14.29
9	4.50	3.00	6.67
10	5.00	3.30	9.09
11	5.50	3.70	10.81
12	6.00	4.00	7.50
13	6.50	4.40	9.09
14	7.00	4.70	6.38

BLANK VALUE = 4.7 micrograms carbon

BLANK FACTOR = 4.7 / 7.004028 =

+6.7E-01 ug/min Carbon

Sample Run By:

DP BROMLEY

XXXXX

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

Sample: S96T005455SAM

Date: 12/10/96

Time: 02:55:31

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.10	0.00
2	1.01	7.90	98.73
3	1.51	20.10	60.70
4	2.01	24.40	17.62
5	2.51	26.20	6.87
6	3.01	27.70	5.42
7	3.51	28.30	2.12
8	4.01	28.90	2.08
9	4.51	29.30	1.37
10	5.01	29.60	1.01
11	5.51	29.90	1.00
12	6.01	30.20	0.99
13	6.50	30.40	0.66
14	7.00	30.60	0.65

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(30.6 - 4.693241) (1.1) / (200) =

+1.42E-01 g/L Carbon

(30.6 - 4.693241) (1.1) / (200) (12) =

+1.19E-02 Molar Carbon

Sample Run By:

DP BROMLEY

XXXXX

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

Sample: S96T005455DUP

Date: 12/10/96

Time: 03:03:47

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	4.90	97.96
3	1.51	17.20	71.51
4	2.01	21.30	19.25
5	2.51	23.20	8.19
6	3.01	24.30	4.53
7	3.51	25.00	2.80
8	4.00	25.50	1.96
9	4.50	25.90	1.54
10	5.00	26.30	1.52
11	5.50	26.60	1.13
12	6.00	26.90	1.12
13	6.50	27.20	1.10
14	7.00	27.40	0.73

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(27.4 - 4.692004) (1.1) / (200) =

+1.25E-01 g/L Carbon

(27.4 - 4.692004) (1.1) / (200) (12) =

+1.04E-02 Molar Carbon

Sample Run By:

DP BROMLEY

XXXXX

HNF-SD-WM-DP-222, REV. 0

XX

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005455SPK

Date: 12/10/96

Time: 03:12:56

Sample Size = 200 uL

23N12B

Dil Factor = 2.5

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	7.20	97.22
3	1.51	41.20	82.52
4	2.01	51.30	19.69
5	2.51	56.50	9.20
6	3.01	59.10	4.40
7	3.51	60.80	2.80
8	4.00	61.80	1.62
9	4.50	62.50	1.12
10	5.00	63.00	0.79
11	5.50	63.50	0.79
12	6.01	63.90	0.63
13	6.51	64.20	0.47
14	7.00	64.50	0.47

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(64.5 - 4.693231) (2.5)/(200) =

+7.48E-01 g/L Carbon

(64.5 - 4.693231) (2.5)/(200) (12) =

+6.23E-02 Molar Carbon

Sample Run By:

DP BROMLEY

XXXXX

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005456SAM

Date: 12/10/96

Time: 03:22:30

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	7.60	98.68
3	1.50	14.80	48.65
4	2.00	17.20	13.95
5	2.50	18.70	8.02
6	3.00	19.60	4.59
7	3.50	20.30	3.45
8	4.00	20.80	2.40
9	4.50	21.10	1.42
10	5.00	21.50	1.86
11	5.50	21.80	1.38
12	6.00	22.00	0.91
13	6.50	22.20	0.90
14	7.00	22.60	1.77

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(22.6 - 4.692678) (1.1) / (200) =

+9.85E-02 g/L Carbon

(22.6 - 4.692678) (1.1) / (200) (12) =

+8.21E-03 Molar Carbon

Sample Run By:

DP BROMLEY

XXXXX

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005456DUP

Date: 12/10/96

Time: 03:33:25

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # =

Blank Value = .67 ug/minute C

Analyst : DP BROMLEY

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	7.60	98.68
3	1.51	13.70	44.53
4	2.01	15.90	13.84
5	2.51	17.40	8.62
6	3.01	18.30	4.92
7	3.51	19.00	3.68
8	4.01	19.50	2.56
9	4.51	19.90	2.01
10	5.01	20.30	1.97
11	5.51	20.70	1.93
12	6.01	21.00	1.43
13	6.50	21.30	1.41
14	7.00	21.50	0.93

USER INPUT BLANK VALUE

BLANK VALUE = 4.692699 micrograms carbon

BLANK FACTOR = 4.692699 / 7.004028 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:

(21.5 - 4.693241) (1.1)/(200) =	+9.24E-02	g/L Carbon
(21.5 - 4.693241) (1.1)/(200) (12) =	+7.70E-03	Molar Carbon

Sample Run By:

DP BROMLEY

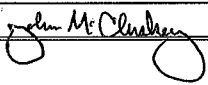
XXXXX

WORKBOOK PAGE: BLANK1

TOC : LA-344-105 (D-1)

LIQUIDS

		BLNK
Type	Sample Volume in mL (SS)	0.000
BLNK	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
14068	Dilution Factor (calculated) (DF)	
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Blank (C1)	3.3
Matrix	µg of Carbon from Baseline (C2)	4.7
LIQUID		
Batch Number		
96010605	µg of Carbon = C1-C2	
Rerun		
0	Method Detection Limit (µg/mL) = 1 µg C * DF * DDF / VI	
Sample Prep		
N/A		
Sample #		
BLNK		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
DPB		
Date Complete		
12/10/96		
Analysis Date		
12/10/96		
Analysis Time	Method Detection Limit in µg/mL	0.00E+00
Sample Point	µg of Carbon	1.40E+00
AY-102 GRAB		

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:		Date:	12/12/96

BLANK.WB1 REV 2.0

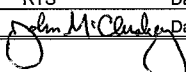
344105ML

WORKBOOK PAGE: STD2

TOC : LA-344-105 (D-1)

LIQUIDS

LIQUIDS		STD
Type	Sample Volume in mL (SS)	0.200
STD	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
14068	Dilution Factor (calculated) (DF)	11.000
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon Found (C1)	53.9
Matrix	µg of Carbon from Baseline (C2)	4.7
LIQUID	Standard Book Number	24N12E
Batch Number	Standard Value (µg/mL)	3000
96010605		
Rerun		
0	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
Sample Prep		
N/A	Method Detection Limit (µg/mL) = 1 µg C * DF * DDF / VI	
Sample #		
STD		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
DPB		
Date Complete		
12/10/96		
Analysis Date		
12/10/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+01
	QC Actual in µg/mL	3.00E+03
Sample Point	QC Found in µg/mL	2.71E+03
AY-102 GRAB	Percent Standard Recovery	90.2

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:		Date:	12/12/96

STANDARD.WB1 REV 2.0

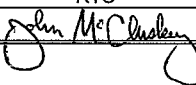
344105ML

WORKBOOK PAGE: SAM3

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
14068	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	30.6
Matrix	µg of Carbon from Baseline (C2)	4.7
LIQUID		
Batch Number		
96010605		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005455		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
DPB		
Date Complete		
12/10/96		
Analysis Date		
12/10/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	1.42E+02
AY-102 GRAB		

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:		Date:	12/12/96

SAMPLE.WB1 REV 2.0

344105ML

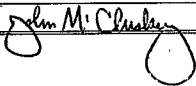
137

WORKBOOK PAGE: DUP4

TOC : LA-344-105 (D-1)

LIQUIDS

LIQUIDS		DUP
Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
14068	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	27.4
Matrix	µg of Carbon from Baseline (C2)	4.7
LIQUID	Result from Sample Page	1.41E+2
Batch Number		
96010605		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005455		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
DPB		
Date Complete		
12/10/96		
Analysis Date		
12/10/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	1.25E+02
AY-102 GRAB		

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:		Date:	12/12/96

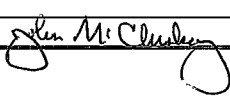
SAMPLE.WB1 REV 2.0

344105.ML

TOC : LA-344-105 (D-1)

LIQUIDS

LIQUIDS			SPIKE	
Type	Sample Vial Data		Spiked Vial Data	
SPK	Sample Volume in mL (SS)	2.000	Was the sample dilution used? (yes/no)	YES
Work List	H2SO4 Volume in mL (VR)	0.200	Sample Volume in mL (SPK SS)	0.400
14068	Volume Injected in mL (VI)	0.200	H2SO4 Volume in mL (SPK VR)	0.200
Test Code	µg of Carbon in Sample (C1)	30.6	Amount of Spike Std. in mL (SPK VOL)	0.400
TOC-01	µg of Carbon from Baseline (C2)	4.7	Volume Injected in mL (SPK VI)	0.200
Matrix			µg C in Sample + Spike (C3)	64.5
LIQUID			Pre-Spike Dilution Factor (PDF)	1.10
Batch Number			Spike Book Number	23N12B
96010605			Spike Value in µg/ml	753
Rerun				
0	Spike Correction Factor (SPK CF) = (SPK SS + SPK VOL + SPK VR) / SPK VI			
Sample Prep	Sample Correction Factor (SAM CF) = (SS + VR) / (VI)			
N/A	Sample Size Correction Factor (SS CF) = (SPK SS) / (SS)			
Sample #	QC Actual in µg/mL = Spike Value (µg/mL)			
S96T005455	QC Found in µg/mL = [(C3 - C2)(SPK CF) - (C1-C2)(SAM CF)(SS CF)/(PDF)] / (SPK VOL)			
Instrument Code	Percent Spike Recovery = (QC Found) / (QC Actual) * 100			
TOC01				
Prepared By				
RTS				
Chemist				
RWS				
Analyst				
DPB				
Date Complete				
12/10/96				
Analysis Date				
12/10/96				
Analysis Time				
	QC Actual in µg/mL		7.53E+02	
Sample Point	QC Found in µg/mL		6.18E+02	
AY-102 GRAB	Percent Spike Recovery		82.1	

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:		Date:	12/12/96

SPIKE.WB1 REV 2.0

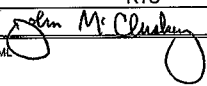
344105ML

WORKBOOK PAGE: SAM6

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
14068	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	22.6
Matrix	µg of Carbon from Baseline (C2)	4.7
LIQUID		
Batch Number		
96010605		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005456		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
DPB		
Date Complete		
12/10/96		
Analysis Date		
12/10/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	9.85E+01
AY-102 GRAB		

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:		Date:	12/12/96

SAMPLE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP7

TOC : LA-344-105 (D-1)

LIQUIDS

LIQUIDS		DUP
Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
14068	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	21.5
Matrix	µg of Carbon from Baseline (C2)	4.7
LIQUID	Result from Sample Page	9.85E+1
Batch Number		
96010605		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005456		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
DPB		
Date Complete		
12/10/96		
Analysis Date		
12/10/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	9.24E+01
AY-102 GRAB		

Data Entered By:	RTS	Date:	12/10/96
Signature of Chemist:	<i>John McChesney</i>	Date:	12/12/96

SAMPLE.WB1 REV 2.0

344105ML

LABCORE Completed Worklist Report for Worklist# 15599

Analyst: srm Instrument: TOC01 Book# _____

Method: LA-344-105 Rev/Mod D-1

Worklist Comment: AY-102 TOC RERUN. RCJ

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK	0		TOC-01	LIQUID	1	8.00E-1	0.800	ug/mL
2	STD	0		TOC-01	LIQUID	3.00E+03	2.98E+3	99.333 % Recovery	
3	SAMPLE	S96T005366	0	TOC-01	LIQUID	N/A	2.68E+02	5.500	ug/mL
4	DUP	S96T005366	0	TOC-01	LIQUID	2.68E+2	2.81E+2	4.736	RPD
5	SPK	S96T005366	0	TOC-01	LIQUID	1.00E+02	9.16E+01	91.600 % Recovery	
6	SAMPLE	S96T005454	0	TOC-01	LIQUID	N/A	3.54E+02	5.500	ug/mL
7	DUP	S96T005454	0	TOC-01	LIQUID	3.54E+2	2.76E+2	24.762	RPD

Comments Section:

Comments for sample# S96T005366 and test TOC-01
Rerun Worklist #1

Final page for worklist# 15599

Analyst Signature _____ Date _____

RWS 12/16/96
Analyst Signature _____ Date _____

Robert W. Schroeder 12/16/96
Reviewer Signature _____ Date _____

LABCORE Data Entry Template for Worklist# 15599

Analyst:

SRM

Instrument: TOC01



Book#

ZAN12-F

Method: LA-344-105

Rev/Mod D-1

Worklist Comment: AY-102 TOC RERUN. RCJ

RUSH

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TOC-01	LIQUID		
2 STD			TOC-01	LIQUID		
3 SAMPLE	S96T005366 0		TOC-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: TOC-01						
4 DUP	S96T005366 0		TOC-01	LIQUID		
5 SPK	S96T005366 0		TOC-01	LIQUID		
6 SAMPLE	S96T005454 0		TOC-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: TOC-01						
7 DUP	S96T005454 0		TOC-01	LIQUID		

Final page for worklist # 15599

S. Novio

12.13.96

Analyst Signature

Date

Analyst Signature

Date

SAMPLE

2.0mL → .200mL H₂SO₄ → .200inj.
SAMPLE (2M)

SPIKE .500mL → .500mL Spk → .200mL inj.
dilution

STANDARD .200mL → .200mL H₂SO₄ → .200mL inj.
STANDARD 2.00mL
RWS 12/16/96

Data Entry Comments:

SPIKE # Z3N12-B

TOC (TOTAL ORGANIC CARBON): LA-344-105 (D-1)

WORKLIST
#

ANALYST
INITIALS

ANALYSIS
DATE

ANALYSIS
TIME

INSTRUMENT
CODE

15599

SRM

12-13-96

1300

☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

STD # =

SAMPLE # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

STD # =

SAMPLE # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

144

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

STD # = 24N12-F

SAMPLE # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

STD # =

SAMPLE # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

SAMPLE # = 916T005366

STD # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE PREP BLANK

SAMPLE # =

STD # =

SAMPLE VOL. (mL) 500

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

SAMPLE # = 916T005454

STD # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE PREP BLANK

SAMPLE # = 916T005454

STD # =

SAMPLE VOL. (mL) 200

H2SO4 VOL. ADDED to SAMPLE

ALICQUOT of SPARGED SAMPLE to be SPIKED

SPIKE VOL. (mL) _____

H2SO4 VOL. ADDED to SAMPLE+SPIKE _____

HNF-SD-WM-DP-222, REV. 0

SPK# 23N12-B

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 12/13/96

Time: 12:16:40

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BASE

Blank Value = N/A

Analyst : SR MORRIS

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	0.90	44.44
3	1.51	1.20	25.00
4	2.01	1.60	25.00
5	2.51	1.90	15.79
6	3.01	2.20	13.64
7	3.51	2.50	12.00
8	4.01	2.80	10.71
9	4.50	3.10	9.68
10	5.00	3.40	8.82

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 5.0047 =

+6.8E-01 ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 145 TO 159.

Sample Run By:

SR MORRIS

S. Morris 12.13.96
00000

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK

Date: 12/13/96

Time: 12:03:12

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 0 ug/minute C

Analyst : SR MORRIS

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.51	0.70	28.57
4	2.01	1.00	30.00
5	2.51	1.30	23.08
6	3.01	1.50	13.33
7	3.51	1.80	16.67
8	4.01	2.10	14.29
9	4.51	2.40	12.50
10	5.01	4.20	42.86

USER INPUT BLANK VALUE

BLANK VALUE = 0 micrograms carbon

BLANK FACTOR = 0 / 0 =

+0.0E+00 ug/min Carbon

SAMPLE RESULTS:

(4.2 - 0) (1) / (200) =

+2.1E-02 g/L Carbon

(4.2 - 0) (1) / (200) (12) =

+1.7E-03 Molar Carbon

<<<< WARNING- PERCENT DIFFERENCE EXCEEDS 10 PERCENT >>>>

Sample Run By:

S. Morris 12.13.96
SR MORRIS 00000

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

Sample: STD

Date: 12/13/96

Time: 12:23:39

Sample Size = 200 uL

Dil Factor = 11

Blank ID # = BASE

Blank Value = .6793615 ug/minute C

Analyst : SR MORRIS

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.20	0.00
2	1.01	26.00	99.23
3	1.51	44.60	41.70
4	2.01	51.30	13.06
5	2.51	54.00	5.00
6	3.00	55.30	2.35
7	3.50	56.10	1.43
8	4.00	56.70	1.06
9	4.50	57.20	0.87
10	5.00	57.60	0.69

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 5.0047 =

+6.8E-01

ug/min Carbon

SAMPLE RESULTS:

(57.6 - 3.399337) (11)/(200) =

+2.98E+00 g/L Carbon

(57.6 - 3.399337) (11)/(200) (12) =

+2.48E-01 Molar Carbon

Sample Run By:

S. Morris 12.13.96

SR MORRIS

00000

HNF-SD-WM-DP-222, PwO

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TIC/TOC REV 2.0

Sample: S96T005366DUP *Pw*
12.13.96 Date: 12/13/96

Time: 14:42:23

Sample Size = 200 μ L
 Dil Factor = ~~11~~ *12.13.96*
 Blank ID # = BASE *1.1*
 Blank Value = .6793615 ug/minute C

Analyst : SR MORRIS
 Min Readings = 10
 Max Readings = 10
 % Difference = 10

== Reading ==	Analysis	Time ==	Coulometer ==	% Difference ==
1	0.51		0.30	0.00
2	1.01		25.70	98.83
3	1.51		40.50	36.54
4	2.00		45.70	11.38
5	2.50		48.20	5.19
6	3.00		49.50	2.63
7	3.50		50.60	2.17
8	4.00		51.10	0.98
9	4.50		51.60	0.97
10	5.00		52.10	0.96

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 5.0047 =

+6.8E-01 ug/min Carbon

SAMPLE RESULTS:

(52.1 - 3.399295) (11)/(200) =
 (52.1 - 3.399295) (11)/(200) (12) =

+2.68E+00 g/L Carbon
 +2.23E-01 Molar Carbon

Sample Run By:

SR MORRIS

00000

HNF-SD-WM-DP-222, REV. 0
 TOC - TOTAL ORGANIC CARBON ANALYSIS REPORT
 TIC/TOC REV 2.0

Sample: S96T005366DUP Date: 12/13/96 Time: 14:30:18

Sample Size = 200 uL Analyst : SR MORRIS
 Dil Factor = 11.1 Min Readings = 10
 Blank ID # = BASE Max Readings = 10
 Blank Value = .6793615 ug/minute C % Difference = 10

== Reading ==	Time ==	Coulometer ==	% Difference ==
1	0.51	0.50	0.00
2	1.01	29.30	98.29
3	1.50	43.60	32.80
4	2.00	48.90	10.84
5	2.50	51.20	4.49
6	3.00	52.40	2.29
7	3.50	53.10	1.32
8	4.00	53.60	0.93
9	4.50	54.10	0.92
10	5.00	54.40	0.55

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 5.0047 = +6.8E-01 ug/min Carbon

SAMPLE RESULTS:

(54.4 - 3.399295) (11)/(200) = +2.81E+00 g/L Carbon
 (54.4 - 3.399295) (11)/(200) (12) = +2.34E-01 Molar Carbon

Sample Run By:

S. Morris 12.13.96
 SR MORRIS 00000

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005366SPK Date: 12/13/96 Time: 15:14:58

Sample Size = .200 uL Analyst : SR MORRIS
Dil Factor = 1.1 Min Readings = 10
Blank ID # = BASE Max Readings = 10
Blank Value = .6793615 ug/minute C % Difference = 10

Reading	Analysis	Time	Coulometer	% Difference
1	0.51	1.10	0.00	
2	1.01	63.20	98.26	
3	1.51	80.60	21.59	
4	2.01	87.90	8.30	
5	2.51	91.70	4.14	
6	3.01	93.60	2.03	
7	3.51	94.90	1.37	
8	4.01	95.60	0.73	
9	4.50	96.20	0.62	
10	5.00	96.70	0.52	

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 5.0047 = +6.8E-01 ug/min Carbon

SAMPLE RESULTS:

(96.7 - 3.399959) (1.1)/(200) = +5.13E-01 g/L Carbon
(96.7 - 3.399959) (1.1)/(200) (12) = +4.28E-02 Molar Carbon

Sample Run By:

SR MORRIS

S. Morris 12.13.96
00000

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005454

Date: 12/13/96

Time: 15:21:53

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # = BASE

Blank Value = .6793615 ug/minute C

Analyst : SR MORRIS

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	1.30	0.00
2	1.01	44.40	97.07
3	1.51	55.50	20.00
4	2.01	60.80	8.72
5	2.51	63.30	3.95
6	3.00	64.90	2.47
7	3.50	65.90	1.52
8	4.00	66.70	1.20
9	4.50	67.20	0.74
10	5.00	67.70	0.74

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 5.0047 =

+6.8E-01 ug/min Carbon

SAMPLE RESULTS:

(67.7 - 3.399295) (1.1) / (200) =

+3.54E-01 g/L Carbon

(67.7 - 3.399295) (1.1) / (200) (12) =

+2.95E-02 Molar Carbon

Sample Run By:

S. Morris
SR MORRIS

12/13/96

00000

HNE-SD-WM-DP-222, REV.0
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TIC/TOC REV 2.0

Sample: S96T005454DUP Date: 12/13/96 Time: 15:32:33

Sample Size = 200 uL Analyst : SR MORRIS
 Dil Factor = 1.1 Min Readings = 10
 Blank ID # = BASE Max Readings = 10
 Blank Value = .6793615 ug/minute C % Difference = 10

== Reading ==	Analysis	Time	Coulometer	% Difference ==
1	0.51	1.70	0.00	
2	1.01	36.20	95.30	
3	1.51	44.20	18.10	
4	2.00	47.70	7.34	
5	2.50	49.90	4.41	
6	3.00	51.10	2.35	
7	3.50	51.90	1.54	
8	4.00	52.60	1.33	
9	4.50	53.00	0.75	
10	5.00	53.50	0.93	

BLANK VALUE = 3.4 micrograms carbon
 BLANK FACTOR = 3.4 / 5.0047 = +6.8E-01 ug/min Carbon

SAMPLE RESULTS:
 (53.5 - 3.39942) (1.1)/(200) = +2.76E-01 g/L Carbon
 (53.5 - 3.39942) (1.1)/(200) (12) = +2.30E-02 Molar Carbon

Sample Run By:

S. Morris 12.13.96
 SR MORRIS 00000

TOC : LA-344-105 (D-1)

LIQUIDS

Type	Sample Volume in mL	BLNK
BLNK	H2SO4 Volume in mL (SS)	0.200
Work List	Volume Injected in mL (VR)	0.000
15599	Dilution Factor (calculated) (VI)	0.200
Test Code	Digest Dilution Factor (DF)	1.000
TOC-01	µg of Carbon in Blank (DDF)	1
Matrix	µg of Carbon from Baseline (C1)	4.2
LIQUID	(C2)	3.4
Batch Number	µg of Carbon = C1-C2	
96012214	Method Detection Limit (µg/mL) = 1 µg C * DF * DDF / VI	
Rerun		
0		
Sample Prep		
N/A		
Sample #		
BLNK		
Instrument Code		
Prepared By		
RWS		
Chemist		
RWS		
Analyst		
SRM		
Date Complete		
12/16/96		
Analysis Date		
12/13/96		
Analysis Time	Method Detection Limit in µg/mL	5.00E+00
Sample Point	µg of Carbon	8.00E-01
AY-102		

Data Entered By:	RWS	Date:	12/16/96
Signature of Chemist:		Date:	

WORKBOOK PAGE: STD2

TOC : LA-344-105 (D-1)

LIQUIDS

		STD
Type	Sample Volume in mL (SS)	0.200
STD	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
15599	Dilution Factor (calculated) (DF)	11.000
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon Found (C1)	57.6
Matrix	µg of Carbon from Baseline (C2)	3.4
LIQUID	Standard Book Number	24N12F
Batch Number	Standard Value (µg/ml)	3000
96012214		
Rerun		
0	$\mu\text{g of Carbon/mL} = (C1-C2) * DF * DDF / VI$	
Sample Prep		
N/A	Method Detection Limit (µg/mL) = $1 \mu\text{g C} * DF * DDF / VI$	
Sample #		
24N12F		
Instrument Code		
Prepared By		
rws		
Chemist		
rws		
Analyst		
SRM		
Date Complete		
12/16/96		
Analysis Date		
12/13/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+01
	QC Actual in µg/mL	3.00E+03
Sample Point	QC Found in µg/mL	2.98E+03
AY-102	Percent Standard Recovery	99.4

Data Entered By:	rws	Date:	12/16/96
Signature of Chemist:		Date:	

STANDARD.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SAM3

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
15599	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	52.1
Matrix	µg of Carbon from Baseline (C2)	3.4
LIQUID		
Batch Number		
96012214		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005366		
Instrument Code		
Prepared By		
rws		
Chemist		
rws		
Analyst		
SRM		
Date Complete		
12/16/96		
Analysis Date		
12/13/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	2.68E+02
AY-102		

Data Entered By:	rws	Date:	12/16/96
Signature of Chemist:		Date:	

WORKBOOK PAGE: DUP4

TOC : LA-344-105 (D-1)

LIQUIDS

		DUP
Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
15599	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	54.4
Matrix	µg of Carbon from Baseline (C2)	3.4
LIQUID	Result from Sample Page	2.68E+2
Batch Number		
96012214		
Rerun	$\mu\text{g of Carbon/mL} = (C1-C2) * DF * DDF / VI$	
0		
Sample Prep	Method Detection Limit = $1 \mu\text{g C} * DF * DDF / VI$	
N/A		
Sample #		
S96T005366		
Instrument Code		
Prepared By		
rws		
Chemist		
rws		
Analyst		
SRM		
Date Complete		
12/16/96		
Analysis Date		
12/13/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	2.81E+02
AY-102		

Data Entered By:	rws	Date:	12/16/96
Signature of Chemist:		Date:	

SAMPLE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SPIKE5

TOC : LA-344-105 (D-1)

LIQUIDS

LIQUIDS			SPIKE	
Type	Sample Vial Data		Spiked Vial Data	
SPK	Sample Volume in mL (SS)	2.000	Was the sample dilution used? (yes/no)	Yes
Work List	H2SO4 Volume in mL (VR)	0.200	Sample Volume in mL (SPK SS)	0.500
15599	Volume Injected in mL (VI)	0.200	H2SO4 Volume in mL (SPK VR)	0.000
Test Code	µg of Carbon in Sample (C1)	52.1	Amount of Spike Std. in mL (SPK VOL)	0.500
TOC-01	µg of Carbon from Baseline (C2)	3.4	Volume Injected in mL (SPK VI)	0.200
Matrix			µg C in Sample + Spike (C3)	96.7
LIQUID			Pre-Spike Dilution Factor (PDF)	1.10
Batch Number			Spike Book Number	23N12B
96012214			Spike Value in µg/ml	753
Rerun				
0	Spike Correction Factor (SPK CF) = (SPK SS + SPK VOL + SPK VR) / SPK VI			
Sample Prep	Sample Correction Factor (SAM CF) = (SS + VR) / (VI)			
N/A	Sample Size Correction Factor (SS CF) = (SPK SS) / (SS)			
Sample #	QC Actual in µg/mL = Spike Value (µg/mL)			
S96T005366	QC Found in µg/mL = [(C3 - C2)(SPK CF) - (C1-C2)(SAM CF)(SS CF)/(PDF)] / (SPK VOL)			
Instrument Code	Percent Spike Recovery = (QC Found) / (QC Actual) * 100			
Prepared By				
rws				
Chemist				
rws				
Analyst				
SRM				
Date Complete				
12/16/96				
Analysis Date				
12/13/96				
Analysis Time				
	QC Actual in µg/mL			7.53E+02
Sample Point	QC Found in µg/mL			6.90E+02
AY-102	Percent Spike Recovery			91.6

Data Entered By:	rws	Date:	12/16/96
Signature of Chemist:		Date:	

SPIKE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SAM6

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
15599	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	67.7
Matrix	µg of Carbon from Baseline (C2)	3.4
LIQUID		
Batch Number		
96012214		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005454		
Instrument Code		
Prepared By		
rws		
Chemist		
rws		
Analyst		
SRM		
Date Complete		
12/16/96		
Analysis Date		
12/13/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	3.54E+02
AY-102		

Data Entered By:	rws	Date:	12/16/96
Signature of Chemist:		Date:	

SAMPLE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP7

TOC : LA-344-105 (D-1)

LIQUIDS

		DUP
Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
15599	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	53.5
Matrix	µg of Carbon from Baseline (C2)	3.4
LIQUID	Result from Sample Page	3.54E+2
Batch Number		
96012214		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S96T005454		
Instrument Code		
Prepared By		
rws		
Chemist		
rws		
Analyst		
SRM		
Date Complete		
12/16/96		
Analysis Date		
12/13/96		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	2.76E+02
AY-102		

Data Entered By:	rws	Date:	12/16/96
Signature of Chemist:		Date:	

SAMPLE.WB1 REV 2.0

344105ML

LABCORE Data Entry Template for Worklist# 14064

Analyst: dgg Instrument: TIC01 _____ Book # _____

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: AY-102 TIC. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK			TIC-02	LIQUID	<u>1</u>	<u>2.29^{ei}</u>	<u>N/A</u>	ug/mL
		2 STD			TIC-02	LIQUID	<u>6.02^{ez}</u>	<u>5.90^{ez}</u>	<u>N/A</u>	ug/mL
96001366	AY-102 GRAB	3 SAMPLE	S96T005366	0	TIC-02	LIQUID	<u>N/A</u>	<u>8.20^{ez}</u>	<u>5.0</u>	ug/mL
96001366	AY-102 GRAB	4 DUP	S96T005366	0	TIC-02	LIQUID	<u>8.20^{ez}</u>	<u>8.62^{ez}</u>	<u>N/A</u>	ug/mL
96001366	AY-102 GRAB	5 SPK	S96T005366	0	TIC-02	LIQUID	<u>100</u>	<u>103.7</u>	<u>N/A</u>	ug/mL
96001366	AY-102 GRAB	6 SAMPLE	S96T005454	0	TIC-02	LIQUID	<u>N/A</u>	<u>8.12^{ez}</u>	<u>5.0</u>	ug/mL
96001366	AY-102 GRAB	7 DUP	S96T005454	0	TIC-02	LIQUID	<u>8.21^{ez}</u>	<u>8.24^{ez}</u>	<u>N/A</u>	ug/mL

Final page for worklist # 14064

Analyst Signature _____ Date _____

R. L. Stahl 12-4-96
Analyst Signature Date

Approved R. J. Schmeck
12/5/96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

RUSH

(auth)

LABCORE Data Entry Template for Worklist# 14064

Analyst: UBB Instrument: TIC01 _____ Book# TIC 22N12-F
TIC 24N12-E
Method: LA-342-100 Rev/Mod _____

Worklist Comment: AY-102 TIC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TIC-02	LIQUID		
2 STD			TIC-02	LIQUID		
3 SAMPLE	S96T005366 0		TIC-02	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: TIC-02					
4 DUP	S96T005366 0		TIC-02	LIQUID		
5 SPK	S96T005366 0		TIC-02	LIQUID		
6 SAMPLE	S96T005454 0		TIC-02	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: TIC-02					
7 DUP	S96T005454 0		TIC-02	LIQUID		

Final page for worklist # 14064

UBB
Analyst Signature

12-4-96
Date

Analyst Signature

Date

Data Entry Comments:

WORKLIST # 14064

ANALYST INITIALS JBS

DATE 12-4-96

TIME 0445

INSTRUMENT CODE

TIC/TOC: LA-342-100 (E-0)

Cub # 1

☒ BASELINE BLANK

☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # =

STD # =

SAMPLE WEIGHT (g) _____

SPIKE/STANDARD VOLUME (mL) _____

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 8.00 TOC: 30.90

☐ BASELINE BLANK

☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # =

STD # =

SAMPLE WEIGHT (g) _____

SPIKE/STANDARD VOLUME (mL) _____

TIC: 1.0 mL

TOC: 200 mL

FINAL COULOMETER READING (u TIC: 597.50 TOC: 548.00

162

☒ BASELINE BLANK

☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # =

STD # =

SAMPLE WEIGHT (g) _____

SPIKE/STANDARD VOLUME (mL) _____

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 9.00 TOC: 32.60

☐ BASELINE BLANK

☒ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # =

STD # =

SAMPLE WEIGHT (g) _____

SPIKE/STANDARD VOLUME (mL) _____

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 213.00 TOC: _____

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = 5967005366 - Dup STD # =

SAMPLE WEIGHT (g) 250 mg

SPIKE/STANDARD VOLUME (mL) 2.576 g

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 223.40 TOC: _____

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE

SAMPLE # = 5967005366 STD # =

SAMPLE WEIGHT (g) 250 mg

SPIKE/STANDARD VOLUME (mL) 2.576 g

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 525.20 TOC: _____

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = 5967005454 STD # =

SAMPLE WEIGHT (g) 250 mg

SPIKE/STANDARD VOLUME (mL) 2.576 g

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 210.90 TOC: _____

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = 5967005454 STD # =

SAMPLE WEIGHT (g) 250 mg

SPIKE/STANDARD VOLUME (mL) 2.576 g

TIC: _____

TOC: _____

FINAL COULOMETER READING (u TIC: 213.90 TOC: _____

HNF-SD-WM-DP-222, REV. 0

TIC SM = 22.12-F

#1

HNF-SD-WM-DP-222, REV. 0
TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASELINE

Date: 12/03/96

Time: 22:03:32

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASELINE
Blank Value = N/A

Analyst : DG GRIFFIN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.70	0.00
2	1.01	1.10	36.36
3	1.51	1.60	31.25
4	2.01	2.30	30.43
5	2.50	2.70	14.81
6	3.00	3.00	10.00
7	3.50	3.40	11.76
8	4.00	3.80	10.53
9	4.50	4.10	7.32
10	5.00	4.30	4.65
11	5.50	4.70	8.51
12	6.00	5.00	6.00
13	6.50	5.30	5.66
14	7.00	5.50	3.64
15	7.50	5.90	6.78
16	8.00	6.20	4.84
17	8.50	6.50	4.62
18	9.00	6.80	4.41
19	9.50	7.20	5.56
20	10.00	7.40	2.70
21	10.50	7.70	3.90
22	11.00	8.00	3.75

BLANK VALUE = 8 micrograms carbon
BLANK FACTOR = 8 / 10.99805 =

+7.3E-01 ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 163 TO 180.

Sample Run By:

DG GRIFFIN

Ruth Schmitt for DG Griffin
1/30/97
00000

#1

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASELINE

Date: 12/03/96

Time: 22:16:23

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASELINE
Blank Value = N/A

Analyst : DG GRIFFIN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.30	0.00
2	1.01	2.00	85.00
3	1.50	8.80	77.27
4	2.00	16.20	45.68
5	2.50	20.40	20.59
6	3.00	22.40	8.93
7	3.50	23.60	5.08
8	4.00	24.70	4.45
9	4.50	25.60	3.52
10	5.00	26.30	2.66
11	5.50	26.90	2.23
12	6.00	27.40	1.82
13	6.50	27.80	1.44
14	7.00	28.20	1.42
15	7.50	28.60	1.40
16	8.00	28.90	1.04
17	8.50	29.20	1.03
18	9.00	29.60	1.35
19	9.50	29.90	1.00
20	10.00	30.30	1.32
21	10.50	30.50	0.66
22	11.00	30.90	1.29

...

BLANK VALUE = 30.9 micrograms carbon

BLANK FACTOR = 30.9 / 11.00061 = +2.81E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

DG GRIFFIN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 22N12-F

Date: 12/03/96

Time: 22:31:50

Sample Size = 1000 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

```

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==
 1          0.51          0.40          0.00
 2          1.01          36.70          98.91
 3          1.50          165.80          77.86
 4          2.00          332.70          50.17
 5          2.50          470.70          29.32
 6          3.00          544.70          13.59
 7          3.50          575.70           5.38
 8          4.00          587.00           1.93
 9          4.50          591.20           0.71
10          5.00          592.60           0.24
11          5.50          593.50           0.15
12          6.00          594.00           0.08
13          6.50          594.50           0.08
14          7.00          594.90           0.07
15          7.50          595.20           0.05
16          8.00          595.60           0.07
17          8.50          595.90           0.05
18          9.00          596.30           0.07
19          9.50          596.60           0.05
20         10.00          596.90           0.05
21         10.50          597.20           0.05
22         11.00          597.50           0.05

```

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 =

+7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(597.5 - 8.031248) (1) / (1000) =

+5.895E-01 g/L Carbon

(597.5 - 8.031248) (1) / (1000) (12) =

+4.912E-02 Molar Carbon

Sample Run By:

DG GRIFFIN

00000

#1

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 24N12-E

Date: 12/03/96

Time: 22:46:46

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.81 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	1.90	78.95
3	1.50	24.50	92.24
4	2.00	164.20	85.08
5	2.50	392.60	58.18
6	3.00	495.50	20.77
7	3.50	526.30	5.85
8	4.00	536.00	1.81
9	4.50	540.10	0.76
10	5.00	542.00	0.35
11	5.50	543.20	0.22
12	6.00	543.90	0.13
13	6.50	544.40	0.09
14	7.00	545.20	0.15
15	7.50	545.40	0.04
16	8.00	545.90	0.09
17	8.50	546.40	0.09
18	9.00	546.60	0.04
19	9.50	547.00	0.07
20	10.00	547.40	0.07
21	10.50	547.70	0.05
22	11.00	548.00	0.05

USER INPUT BLANK VALUE

BLANK VALUE = 30.91171 micrograms carbon

BLANK FACTOR = 30.91171 / 11.00061 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

(548 - 30.90966) (1)/(200) = +2.585E+00 g/L Carbon
 (548 - 30.90966) (1)/(200) (12) = +2.155E-01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

DG GRIFFIN

00000

41

HNF-SD-WM-DP-222, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK

Date: 12/03/96

Time: 23:01:36

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ---- Analysis Time ---- Coulometer ---- % Difference ==

1	0.51	0.30	0.00
2	1.01	1.70	82.35
3	1.51	3.20	46.88
4	2.00	3.90	17.95
5	2.50	4.40	11.36
6	3.00	4.80	8.33
7	3.50	5.10	5.88
8	4.00	5.40	5.56
9	4.50	5.70	5.26
10	5.00	5.90	3.39
11	5.50	6.20	4.84
12	6.00	6.40	3.13
13	6.50	6.70	4.48
14	7.00	6.90	2.90
15	7.50	7.20	4.17
16	8.00	7.50	4.00
17	8.50	7.70	2.60
18	9.00	7.90	2.53
19	9.50	8.20	3.66
20	10.00	8.40	2.38
21	10.50	8.70	3.45
22	11.00	9.00	3.33

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(9 - 8.029911) (1)/(1) =

+9.7E-01 g/L Carbon

(9 - 8.029911) (1)/(1) (12) =

+8.1E-02 Molar Carbon

Sample Run By:

DG GRIFFIN

00000

#1

HNF-SD-WM-DP-222, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK

Date: 12/03/96

Time: 23:15:30

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.81 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

```
== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==
 1          0.51          0.30          0.00
 2          1.01          1.90          84.21
 3          1.51          9.00          78.89
 4          2.01          18.00          50.00
 5          2.51          23.00          21.74
 6          3.00          25.30          9.09
 7          3.50          26.50          4.53
 8          4.00          27.50          3.64
 9          4.50          28.30          2.83
10          5.00          28.80          1.74
11          5.50          29.30          1.71
12          6.00          29.70          1.35
13          6.50          30.00          1.00
14          7.00          30.40          1.32
15          7.50          30.70          0.98
16          8.00          31.00          0.97
17          8.50          31.20          0.64
18          9.00          31.50          0.95
19          9.50          31.80          0.94
20         10.00          32.00          0.63
21         10.50          32.30          0.93
22         11.00          32.60          0.92
```

USER INPUT BLANK VALUE

BLANK VALUE = 30.91171 micrograms carbon

BLANK FACTOR = 30.91171 / 11.00061 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

```
( 32.6 - 30.90966 ) (1)/(1) = +1.69E+00 g/L Carbon
( 32.6 - 30.90966 ) (1)/(1) (12) = +1.41E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>
```

Sample Run By:

DG GRIFFIN

00000

#1

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005366

Date: 12/04/96

Time: 02:24:00

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.70	0.00
2	1.01	13.60	94.85
3	1.51	59.70	77.22
4	2.01	117.20	49.06
5	2.51	156.70	25.21
6	3.01	176.10	11.02
7	3.51	186.00	5.32
8	4.01	191.40	2.82
9	4.50	194.30	1.49
10	5.00	196.80	1.27
11	5.50	198.70	0.96
12	6.00	200.60	0.95
13	6.50	202.10	0.74
14	7.00	203.60	0.74
15	7.50	205.10	0.73
16	8.00	206.30	0.58
17	8.50	207.70	0.67
18	9.00	208.80	0.53
19	9.50	209.90	0.52
20	10.00	211.10	0.57
21	10.50	212.00	0.42
22	11.00	213.00	0.47

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(213 - 8.03049) (1)/(1) =

+2.050E+02 g/L Carbon

(213 - 8.03049) (1)/(1) (12) =

+1.708E+01 Molar Carbon

Sample Run By:

DG GRIFFIN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005366DUP

Date: 12/04/96

Time: 02:38:04

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.70	0.00
2	1.01	4.70	85.11
3	1.51	36.70	87.19
4	2.01	93.50	60.75
5	2.50	143.50	34.84
6	3.00	174.70	17.86
7	3.50	189.80	7.96
8	4.00	197.30	3.80
9	4.50	201.10	1.89
10	5.00	203.70	1.28
11	5.50	206.20	1.21
12	6.00	208.20	0.96
13	6.50	210.00	0.86
14	7.00	211.60	0.76
15	7.50	213.40	0.84
16	8.00	215.10	0.79
17	8.50	216.60	0.69
18	9.00	218.00	0.64
19	9.50	219.40	0.64
20	10.00	220.80	0.63
21	10.50	222.20	0.63
22	11.00	223.40	0.54

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(223.4 - 8.029142) (1)/(1) = +2.154E+02 g/L Carbon
 (223.4 - 8.029142) (1)/(1) (12) = +1.795E+01 Molar Carbon

Sample Run By:

DG GRIFFIN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005366SPK

Date: 12/04/96

Time: 03:33:34

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

-- Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	1.00	0.00
2	1.01	2.30	56.52
3	1.50	40.40	94.31
4	2.00	179.80	77.53
5	2.50	331.10	45.70
6	3.00	427.60	22.57
7	3.50	473.00	9.60
8	4.00	492.40	3.94
9	4.50	500.00	1.52
10	5.00	504.00	0.79
11	5.50	507.00	0.59
12	6.00	509.20	0.43
13	6.50	511.10	0.37
14	7.00	513.10	0.39
15	7.50	514.80	0.33
16	8.00	516.50	0.33
17	8.50	518.20	0.33
18	9.00	519.60	0.27
19	9.50	521.10	0.29
20	10.00	522.30	0.23
21	10.50	523.70	0.27
22	11.00	525.20	0.29

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(525.2 - 8.029756) (1)/(1) = +5.172E+02 g/L Carbon
 (525.2 - 8.029756) (1)/(1) (12) = +4.310E+01 Molar Carbon

Sample Run By:

DG GRIFFIN

00000

#/

HNF-SD-WM-DP-222, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

Sample: S96T005454

Date: 12/04/96

Time: 03:49:37

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.80	0.00
2	1.01	1.90	57.89
3	1.50	15.20	87.50
4	2.00	63.00	75.87
5	2.50	118.00	46.61
6	3.00	155.60	24.16
7	3.50	175.60	11.39
8	4.00	185.30	5.23
9	4.50	190.00	2.47
10	5.00	192.80	1.45
11	5.50	195.20	1.23
12	6.00	197.10	0.96
13	6.50	198.70	0.81
14	7.00	200.30	0.80
15	7.50	202.20	0.94
16	8.00	203.50	0.64
17	8.50	204.90	0.68
18	9.00	206.30	0.68
19	9.50	207.50	0.58
20	10.00	208.70	0.57
21	10.50	209.90	0.57
22	11.00	210.90	0.47

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(210.9 - 8.029154) (1)/(1)	=	+2.029E+02	g/L Carbon
(210.9 - 8.029154) (1)/(1)(12)	=	+1.691E+01	Molar Carbon

Sample Run By:

DG GRIFFIN

00000

#1

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005454DUP

Date: 12/04/96

Time: 04:07:55

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .73 ug/minute C

Analyst : DG GRIFFIN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	1.20	0.00
2	1.01	2.20	45.45
3	1.51	13.80	84.06
4	2.00	54.70	74.77
5	2.50	112.60	51.42
6	3.00	154.20	26.98
7	3.50	176.60	12.68
8	4.00	187.90	6.01
9	4.50	193.20	2.74
10	5.00	196.20	1.53
11	5.50	198.60	1.21
12	6.00	200.50	0.95
13	6.50	202.20	0.84
14	7.00	203.80	0.79
15	7.50	205.20	0.68
16	8.00	206.60	0.68
17	8.50	208.00	0.67
18	9.00	209.40	0.67
19	9.50	210.60	0.57
20	10.00	211.90	0.61
21	10.50	212.80	0.42
22	11.00	213.90	0.51

USER INPUT BLANK VALUE

BLANK VALUE = 8.030446 micrograms carbon

BLANK FACTOR = 8.030446 / 11.00061 =

+7.3E-01 ug/min Carbon

SAMPLE RESULTS:

(213.9 - 8.031092) (1)/(1) =

(213.9 - 8.031092) (1)/(1) (12) =

+2.059E+02 g/L Carbon

+1.716E+01 Molar Carbon

Sample Run By:

DG GRIFFIN

00000

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

			TIC	TOC
Type	Sample Size in mL	(SS)	0.0000	
BLANK	Dilution Factor	(DF)	1	
Work List	µg of Carbon in Sample	(C1)	9.0 30.9	RWS 12/5/96
14064	µg of Carbon from Baseline	(C2)	8	

Test Code

TIC-02

Matrix

LIQUID

Batch Number

Rerun

µg of Carbon = |C1-C2|

Sample Prep

Sample #

BLNK

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

DGG

Date Complete

12/04/96

Analysis Date

12/04/96

Analysis Time

Method Detection Limit in µg/mL

TIC	TOC
5	40
1.0 2.29E+01	

Sample Point

µg of Carbon

AY-102 GRAB

RWS 12/5/96

Data Entered By:

RTS

Date: 12/04/96

Signature of Chemist:

RWS [Signature]

Date: 12/5/96

BLANK.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	
STANDARD	Dilution Factor (DF)	1	
Work List	Final Coulometer Reading in μg (C1)	597.5	
14064	μg of Carbon from Baseline (C2)	8	
Test Code	Standard Book Number	22N12F	
TIC-02	Standard Value ($\mu\text{g}/\text{mL}$)	602	

Matrix
LIQUID
Batch Number

Rerun

Sample Prep

Sample #

STD

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

DGG

Date Complete

12/04/96

Analysis Date

12/04/96

Analysis Time

QC Actual in $\mu\text{g}/\text{mL}$ = Standard Value ($\mu\text{g}/\text{mL}$)QC Found in $\mu\text{g}/\text{mL}$ = (C1 - C2) * DF / SSQC Found in $\mu\text{g}/\text{mL}$ for TIC = 5 if C1 < C2QC Found in $\mu\text{g}/\text{mL}$ for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

NOTE: FOR TOC: The Reported Result is < 40.

		TIC	TOC
Method Detection Limit in $\mu\text{g}/\text{mL}$		5	40
QC Actual in $\mu\text{g}/\text{mL}$		6.02E+02	
QC Found in $\mu\text{g}/\text{mL}$ See Note:	<	5.90E+02	
AY-102 GRAB	Percent Standard Recovery	97.9	

Data Entered By:

Signature of Chemist:

STANDARD.WB1 REV 1.0

342100ML

RTS
RTS
RTS

Date: 12/04/96

Date: 12/15/96

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.2500	
SAMPLE	Dilution Factor (DF)	1	
Work List	µg of Carbon in Sample (C1)	213	
14064	µg of Carbon from Baseline (C2)	8	
Test Code			
TIC-01			

Matrix
LIQUID
Batch Number

Rerun

 $\mu\text{g of Carbon/mL} = (C1-C2) * DF / SS$ $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$ $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

Sample Prep

Sample #

S96T005366

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

DGG

Date Complete

12/04/96

Analysis Date

12/04/96

Analysis Time

NOTE: FOR TOC: The Reported Result is < 40.

Method Detection Limit in µg/mL

TIC

5

TOC

40

Sample Point

µg of Carbon/mL

Note:

<

8.20E+02

AY-102 GRAB

Data Entered By:

RTS

Date: 12/04/96

Signature of Chemist:

Date: 12/5/96

SAMPLE.WB1 REV 1.0

342100ML

TIC	TOC
0.2500	
1	1
223.4	
8	

Type	Sample Size in mL	(SS)	0.2500
DUP	Dilution Factor	(DF)	1
Work List	ug of Carbon in Sample	(C1)	223.4
14064	ug of Carbon from Baseline	(C2)	8
Test Code	Known ug of C from Original Sample		

TIC-02

Matrix

LIQUID

Batch Number

Rerun

$$\mu\text{g of Carbon/mL} = (C1-C2) * DF / SS$$

$\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$

μg of Carbon/mL for TOC = 40 if $C1 < C2$

Sample Prep

Sample #

S96T005366

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

DGG

Date Complete

12/04/96

Analysis Date

NOTE: FOR TOC: The Reported Result is **< 40.**

12/04/96

Analysis Time

Method Detection Limit in µg/mL

TIC

TOC

5

40

Sample Point

µg of Carbon/mL

Note:

A

8.62E+02

AY-102 GRAB

RTS

Date: 12/04/96

Data Entered By:

Signature of Chemist:

Date: 12/5/96

DUP.WB1 REV 1.0

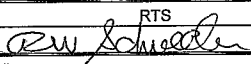
342100ML

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TIC/TOC : LA-342-100 (E-0)

LIQUIDS

Type	Sample Vial Data	TIC	TOC
SPIKE	Sample Volume in mL (SS)	0.2500	
Work List	Final Coulometer Reading in μg (C1)	213	
14064	Spiked Vial Data		
Test Code	Sample Volume in mL (SPK SS)	0.2500	
TIC-02	Amount of Spike Std. in mL (SPK VOL)	0.500	
Matrix	Final Coulometer Reading in μg (C2)	525.2	
LIQUID	Spike Book Number	22N12F	
Batch Number	Spike Standard Value in $\mu\text{g}/\text{mL}$ (SPK CONC)	602	
Rerun			
Sample Prep			
Sample #	Percent Spike Recovery = $(C2 - C1 * (\text{SPK SS}) / \text{SS}) / ((\text{SPK CONC}) * (\text{SPK VOL})) * 100$		
S96T005366			
Instrument Code	QC Actual in $\mu\text{g}/\text{mL}$ = Spike Value ($\mu\text{g}/\text{mL}$)		
TIC01	QC Found in $\mu\text{g}/\text{mL}$ = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
RTS			
Chemist			
RWS			
Analyst			
DGG			
Date Complete			
12/04/96			
Analysis Date			
12/04/96			
Analysis Time		TIC	TOC
	QC Actual in $\mu\text{g}/\text{mL}$	6.02E+02	
Sample Point	QC Found in $\mu\text{g}/\text{mL}$	6.24E+02	
AY-102 GRAB	Percent Spike Recovery	103.7	

Data Entered By:	RTS	Date: 12/04/96
Signature of Chemist:		Date: 12/5/96

SPIKE.WB1 REV 1.1

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.2500	
SAMPLE	Dilution Factor (DF)	1	
Work List	µg of Carbon in Sample (C1)	210.9	
14064	µg of Carbon from Baseline (C2)	8	
Test Code			
TIC-01			
Matrix			
LIQUID			
Batch Number			
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS		
	µg of Carbon/mL for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2		
Sample #			
S96T005454			
Instrument Code			
TIC01			
Prepared By			
RTS			
Chemist			
RWS			
Analyst			
DGG			
Date Complete			
12/04/96			
Analysis Date	NOTE: FOR TOC: The Reported Result is < 40.		
12/04/96			
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon/mL Note: <	8.12E+02	
AY-102 GRAB			

Data Entered By:

RTS

Date: 12/04/96

Signature of Chemist:

VZW Schuele

Date: 12/5/96

SAMPLE.WB1 REV 1.0

342100ML

LABCORE Completed Worklist Report for Worklist# 14066

Analyst: pjm

Instrument: TIC01

Book# _____

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: AY-102 TIC. RCJ

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK	0		TIC-02	LIQUID	1	3.0e-1	0.300	ug/mL
2	STD	0		TIC-02	LIQUID	6.02e02	6.08e2	100.997 % Recovery	
3	SAMPLE	S96T005455	0	TIC-02	LIQUID	N/A	7.84e2	5.000	ug/mL
4	DUP	S96T005455	0	TIC-02	LIQUID	7.84e2	8.11e2	3.386	RPD
5	SPK	S96T005455	0	TIC-02	LIQUID	100	103.1	103.100 % Recovery	
6	SAMPLE	S96T005456	0	TIC-02	LIQUID	N/A	8.26e2	5.000	ug/mL
7	DUP	S96T005456	0	TIC-02	LIQUID	8.26e2	8.51e2	2.982	RPD

Final page for worklist# 14066

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

R. W. Schneider 12/6/96
Reviewer Signature Date

10/16/96 11:15
A-0004-1

HNF-SD-WM-DP-222, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 14066

Analyst: RLM Instrument: CARB #2 TIC01 Book# 22N12F

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: AY-102 TIC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TIC-02	LIQUID		
2 STD			TIC-02	LIQUID		
3 SAMPLE	S96T005455 0		TIC-02	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: TIC-02					
4 DUP	S96T005455 0		TIC-02	LIQUID		
5 SPK	S96T005455 0		TIC-02	LIQUID		
6 SAMPLE	S96T005456 0		TIC-02	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: TIC-02					
7 DUP	S96T005456 0		TIC-02	LIQUID		

Final page for worklist # 14066

RLM 12/5/96
Analyst Signature Date

Analyst Signature Date

FILED
12/5/96
9 pgs
7626

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

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HNF-SD-WM-DP-222, REV. 0

WORKLIST #	TIC/TOC: LA-342-100 (E-0)	ANALYST INITIALS	ANALYSIS DATE	INSTRUMENT CODE
14066		RAM	12/15/96	2350 CARB #2
1	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
2	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
3	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
4	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
5	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
6	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
7	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
8	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
9	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	
10	☒ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>12/15/96</u>	☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPPLICATE STD # = <u>220127</u>	SAMPLE WEIGHT (g) <u>2.5178</u> TIC: <u>104.30</u> TOC: <u>163.40</u> SPIKE/STANDARD VOLUME (mL) <u>1.0</u>	

HNF-SD-WM-DP-222, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 12/05/96

Time: 21:33:50

Sample Size = 1 uL
 Dil Factor = 1
 Blank ID # = BASE-2
 Blank Value = N/A

Analyst : PJ MCCOWN
 Min Readings = 22
 Max Readings = 22
 % Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	0.80	25.00
4	2.00	1.00	20.00
5	2.50	1.20	16.67
6	3.00	1.30	7.69
7	3.50	1.50	13.33
8	4.00	1.70	11.76
9	4.50	1.80	5.56
10	5.00	2.00	10.00
11	5.50	2.10	4.76
12	6.00	2.40	12.50
13	6.50	2.50	4.00
14	7.00	2.70	7.41
15	7.50	2.80	3.57
16	8.00	2.90	3.45
17	8.50	3.10	6.45
18	9.00	3.30	6.06
19	9.50	3.50	5.71
20	10.00	3.50	0.00
21	10.50	3.70	5.41
22	11.00	3.80	2.63

BLANK VALUE = 3.8 micrograms carbon

BLANK FACTOR = 3.8 / 10.99707 =

+3.5E-01

ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 184 TO 197.

Sample Run By:

PJ McCown
 PJ MCCOWN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STANDARD-2

Date: 12/05/96

Time: 21:51:07

Sample Size = 1000 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # = BASE-2

Max Readings = 22

Blank Value = .3455466 ug/minute C

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.20	0.00
2	1.01	6.10	96.72
3	1.50	89.80	93.21
4	2.00	248.90	63.92
5	2.50	402.30	38.13
6	3.00	507.40	20.71
7	3.50	566.00	10.35
8	4.00	593.50	4.63
9	4.50	603.50	1.66
10	5.00	607.20	0.61
11	5.50	608.50	0.21
12	6.00	609.10	0.10
13	6.50	609.40	0.05
14	7.00	609.70	0.05
15	7.50	610.00	0.05
16	8.00	610.20	0.03
17	8.50	610.40	0.03
18	9.00	610.50	0.02
19	9.50	610.70	0.03
20	10.00	610.90	0.03
21	10.50	611.20	0.05
22	11.00	611.30	0.02

BLANK VALUE = 3.8 micrograms carbon

BLANK FACTOR = 3.8 / 10.99707 =

+3.5E-01 ug/min Carbon

SAMPLE RESULTS:

(611.3 - 3.800843) (1)/(1000) =

+6.075E-01 g/L Carbon

(611.3 - 3.800843) (1)/(1000) (12) =

+5.062E-02 Molar Carbon

Sample Run By:

PJ McCown
PJ MCCOWN12/5/96

00000

1.0ML 22N12 F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK-2

Date: 12/05/96

Time: 22:05:42

Sample Size = ^{8m 12/5/96} 1000-uL

Dil Factor = 1

Blank ID # = BASE-2

Blank Value = .3455466 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.50	0.70	28.57
4	2.00	1.00	30.00
5	2.50	1.10	9.09
6	3.00	1.20	8.33
7	3.50	1.40	14.29
8	4.00	1.60	12.50
9	4.50	1.70	5.88
10	5.00	1.80	5.56
11	5.50	1.90	5.26
12	6.00	2.10	9.52
13	6.50	2.30	8.70
14	7.00	2.40	4.17
15	7.50	2.50	4.00
16	8.00	2.70	7.41
17	8.50	2.80	3.57
18	9.00	2.90	3.45
19	9.50	3.10	6.45
20	10.00	3.20	3.13
21	10.50	3.40	5.88
22	11.00	3.50	2.86

BLANK VALUE = 3.8 micrograms carbon

BLANK FACTOR = 3.8 / 10.99707 =

+3.5E-01 ug/min Carbon

SAMPLE RESULTS:

(3.5 - 3.799958) (1) / ¹ (1000) =

(3.5 - 3.799958) (1) / ¹ (1000) (12) =

< 5.00 E-3 g/L Carbon

< 4.17 E-4 Molar Carbon

Sample Run By:

PJ McCown

PJ MCCOWN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005455-2

Date: 12/05/96

Time: 22:44:13

Sample Size = ~~1000-uh~~ 1

Analyst: PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # = BASE-2

Max Readings = 22

Blank Value = .3455466 ug/minute C

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.80	0.00
2	1.01	14.40	94.44
3	1.51	46.10	68.76
4	2.00	81.80	43.64
5	2.50	111.80	26.83
6	3.00	132.50	15.62
7	3.50	144.40	8.24
8	4.00	149.90	3.67
9	4.50	153.20	2.15
10	5.00	154.80	1.03
11	5.50	156.20	0.90
12	6.00	157.30	0.70
13	6.50	158.10	0.51
14	7.00	158.90	0.50
15	7.50	159.70	0.50
16	8.00	160.40	0.44
17	8.50	160.90	0.31
18	9.00	161.50	0.37
19	9.50	162.00	0.31
20	10.00	162.50	0.31
21	10.50	162.90	0.25
22	11.00	163.40	0.31

BLANK VALUE = 3.8 micrograms carbon

BLANK FACTOR = 3.8 / 10.99707 =

+3.5E-01 ug/min Carbon

SAMPLE RESULTS:

$$\begin{aligned} (163.4 - 3.8) (1) / (1000) &= \\ (163.4 - 3.8) (1) / (1000) (12) &= \end{aligned}$$

+1.596E-01 g/L Carbon

+1.330E-02 Molar Carbon

Sample Run By:

PJ MCCOWN

00000

200 mL

20148

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5455DUP-2

Date: 12/05/96

Time: 23:01:02

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE-2

Blank Value = .3455466 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis	Time	Coulometer	% Difference
1	0.51		0.30	0.00
2	1.01		3.80	92.11
3	1.50		30.70	87.62
4	2.01		74.50	58.79
5	2.50		117.60	36.65
6	3.00		150.60	21.91
7	3.50		172.10	12.49
8	4.00		184.00	6.47
9	4.50		190.80	3.56
10	5.00		194.80	2.05
11	5.50		197.40	1.32
12	6.00		199.70	1.15
13	6.50		201.50	0.89
14	7.00		202.90	0.69
15	7.50		204.50	0.78
16	8.00		205.70	0.58
17	8.50		207.20	0.72
18	9.00		207.80	0.29
19	9.50		208.70	0.43
20	10.00		209.70	0.48
21	10.50		210.50	0.38
22	11.00		211.20	0.33

BLANK VALUE = 3.8 micrograms carbon
BLANK FACTOR = 3.8 / 10.99707 =

+3.5E-01 ug/min Carbon

SAMPLE RESULTS:

(211.2 - 3.799578) (1)/(1) =
(211.2 - 3.799578) (1)/(1) (12) =+2.074E+02 g/L Carbon
+1.728E+01 Molar Carbon

Sample Run By:

PJ MCCOWN

00000

.250 mL

.2533g

HNF-SD-WM-DP-222, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5455SPK-2

Date: 12/05/96

Time: 23:17:12

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE-2

Blank Value = .3455466 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.20	0.00
2	1.01	7.90	97.47
3	1.50	90.60	91.28
4	2.00	219.20	58.67
5	2.50	333.70	34.31
6	3.00	409.90	18.59
7	3.50	455.00	9.91
8	4.00	477.60	4.73
9	4.50	488.70	2.27
10	5.00	494.30	1.13
11	5.50	498.10	0.76
12	6.00	500.60	0.50
13	6.50	503.00	0.48
14	7.00	504.90	0.38
15	7.50	506.50	0.32
16	8.00	508.00	0.30
17	8.50	509.50	0.29
18	9.00	510.70	0.23
19	9.50	511.70	0.20
20	10.00	512.80	0.21
21	10.50	513.60	0.16
22	11.00	514.50	0.17

BLANK VALUE = 3.8 micrograms carbon

BLANK FACTOR = 3.8 / 10.99707 =

+3.5E-01

ug/min Carbon

SAMPLE RESULTS:

(514.5 - 3.800591) (1)/(1) =

+5.107E+02 g/L Carbon

(514.5 - 3.800591) (1)/(1)(12) =

+4.256E+01 Molar Carbon

Sample Run By:

PJ McCown
PJ MCCOWN

.250mL

00000

.2517g + .500mL 22012F

189

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5456-2

Date: 12/05/96

Time: 23:32:12

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .345566 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.01	3.50	82.86
3	1.50	32.90	89.36
4	2.00	80.20	58.98
5	2.50	122.60	34.58
6	3.00	151.40	19.02
7	3.50	169.00	10.41
8	4.00	179.20	5.69
9	4.50	185.50	3.40
10	5.00	189.60	2.16
11	5.50	192.40	1.46
12	6.00	194.90	1.28
13	6.50	197.30	1.22
14	7.00	199.00	0.85
15	7.50	200.80	0.90
16	8.00	202.40	0.79
17	8.50	203.70	0.64
18	9.00	204.90	0.59
19	9.50	206.00	0.53
20	10.00	207.10	0.53
21	10.50	208.00	0.43
22	11.00	208.90	0.43

USER INPUT BLANK VALUE

BLANK VALUE = 3.800214 micrograms carbon

BLANK FACTOR = 3.800214 / 10.99707 = +3.5E-01 ug/min Carbon

SAMPLE RESULTS:

(208.9 - 3.800551) (1) / (1)	=	+2.051E+02	g/L Carbon
(208.9 - 3.800551) (1) / (1) (12)	=	+1.709E+01	Molar Carbon

Sample Run By:

.250 mL

.2476 g

PJ MCCOWN

00000

HNF-SD-WM-DP-222, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5456DUP-2

Date: 12/05/96

Time: 23:44:30

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .345566 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.80	0.00
2	1.01	4.60	82.61
3	1.50	38.40	88.02
4	2.00	90.10	57.38
5	2.50	133.30	32.41
6	3.00	160.30	16.84
7	3.50	176.50	9.18
8	4.00	185.70	4.95
9	4.50	191.50	3.03
10	5.00	195.60	2.10
11	5.50	198.90	1.66
12	6.00	201.70	1.39
13	6.50	204.30	1.27
14	7.00	206.50	1.07
15	7.50	208.40	0.91
16	8.00	210.40	0.95
17	8.50	212.00	0.75
18	9.00	213.50	0.70
19	9.50	214.80	0.61
20	10.00	215.90	0.51
21	10.50	217.10	0.55
22	11.00	218.10	0.46

USER INPUT BLANK VALUE

BLANK VALUE = 3.800214 micrograms carbon

BLANK FACTOR = 3.800214 / 10.99707 = +3.5E-01 ug/min Carbon

SAMPLE RESULTS:

(218.1 - 3.800467) (1) / (1)	=	+2.143E+02	g/L Carbon
(218.1 - 3.800467) (1) / (1) (12)	=	+1.786E+01	Molar Carbon

Sample Run By:

PJ MCCOWN

00000

.250mL

.2513g

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.0000	
BLANK	Dilution Factor (DF)	1	
Work List	µg of Carbon in Sample (C1)	3.5	
14066	µg of Carbon from Baseline (C2)	3.8	
Test Code			
TIC-02			
Matrix			
LIQUID			
Batch Number			
Rerun	µg of Carbon = C1-C2		
Sample Prep			
Sample #			
BLNK			
Instrument Code			
TIC01			
Prepared By			
RTS			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
12/06/96			
Analysis Date			
12/06/96			
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon	3.00E-01	
AY-102 GRAB			

Data Entered By:	RTS	Date:	12/06/96
Signature of Chemist:	<i>RTS</i>	Date:	12/6/96

BLANK.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	
STANDARD	Dilution Factor (DF)	1	
Work List	Final Coulometer Reading in μg (C1)	611.3	
14066	μg of Carbon from Baseline (C2)	3.8	
Test Code	Standard Book Number	22N12F	
TIC-02	Standard Value ($\mu\text{g}/\text{mL}$)	602	

Matrix
LIQUID
Batch Number

Rerun

Sample Prep

QC Actual in $\mu\text{g}/\text{mL}$ = Standard Value ($\mu\text{g}/\text{mL}$)QC Found in $\mu\text{g}/\text{mL}$ = (C1 - C2) * DF / SSQC Found in $\mu\text{g}/\text{mL}$ for TIC = 5 if C1 < C2QC Found in $\mu\text{g}/\text{mL}$ for TOC = 40 if C1 < C2

Sample #

STD

Instrument Code

% Recovery = QC Found / QC Actual * 100

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

PJM

Date Complete

12/06/96

Analysis Date

NOTE: FOR TOC: The Reported Result is < 40.

12/06/96

		TIC	TOC
Analysis Time	Method Detection Limit in $\mu\text{g}/\text{mL}$	5	40
	QC Actual in $\mu\text{g}/\text{mL}$	6.02E+02	
Sample Point	QC Found in $\mu\text{g}/\text{mL}$ See Note: <	6.08E+02	
AY-102 GRAB	Percent Standard Recovery	100.9	

Data Entered By: _____ RTS Date: 12/06/96
 Signature of Chemist: *RTS* Date: 12/6/96
 STANDARD.WB1 REV 1.0 342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

			TIC	TOC
Type	Sample Size in mL <i>1g</i> <i>20x 12/6/96</i>	(SS)	0.2014	
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	163.4	
14066	µg of Carbon from Baseline	(C2)	3.8	
Test Code				
TIC-02				
Matrix				
LIQUID				
Batch Number				

Rerun
Sample Prep
Sample #
S96T005455
Instrument Code
TIC01
Prepared By
RTS
Chemist
RWS
Analyst
PJM
Date Complete
12/06/96
Analysis Date
12/06/96
Analysis Time
Sample Point
AY-102 GRAB

$\mu\text{g of Carbon/mL} = (C1-C2) * DF / SS$
 $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

$$SpG = 0.990$$

Unit conversion calculations

$$7.92e2 \mu\text{g/g} \times 0.990 \text{ g/mL} = 7.84e2 \mu\text{g/mL}$$

NOTE: FOR TOC: The Reported Result is < 40.

		TIC	TOC
Method Detection Limit in µg/mL		5	40
µg of Carbon/mL	Note: <	7.92E+02	
		7.84e2	µg/mL

Data Entered By:	RTS	Date: 12/06/96
Signature of Chemist:	<i>RWS</i>	Date: 12/06/96

SAMPLE.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL <i>g RWS 12/6/96</i> (SS)	0.2533	
SAMPLE/DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	211.2	
14066	µg of Carbon from Baseline (C2)	3.8	
Test Code			
TIC-02			

Matrix
LIQUID

Batch Number

Rerun

 $\mu\text{g of Carbon/mL} = (C1-C2) * DF / SS$ $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$ $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

Sample Prep

Sample #

S96T005455

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

PJM

Date Complete

12/06/96

Analysis Date

12/06/96

Analysis Time

Method Detection Limit in µg/mL

Sample Point

AY-102 GRAB

NOTE: FOR TOC: The Reported Result is < 40.

	TIC	TOC
	5	40

µg of Carbon/mL Note: <

8.19E+02

*g RWS 12/6/96**8.11e2 µg/mL*

$$SpG = 0.990$$

Unit conversion calculations

$$8.19e2 \mu\text{g/g} \times 0.990 \frac{\mu\text{g/g}}{\mu\text{g/mL}} = 8.11e2 \mu\text{g/mL}$$

Data Entered By:	RTS	Date:	12/06/96
Signature of Chemist:	<i>RWS</i>	Date:	12/6/96

SAMPLE.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

Type	Sample Size in mL	(SS)	TIC	TOC
SAMPLE	Dilution Factor <i>20x 12/6/96</i>	(DF)	0.2476	
Work List	µg of Carbon in Sample	(C1)	208.9	1
14066	µg of Carbon from Baseline	(C2)	3.8	
Test Code				
TIC-02				

Matrix
LIQUID

Batch Number

Rerun

µg of Carbon/mL = (C1-C2) * DF / SS

µg of Carbon/mL for TIC = 5 if C1 < C2

µg of Carbon/mL for TOC = 40 if C1 < C2

Sample Prep

Sample #

S96T005456

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

PJM

Date Complete

12/06/96

Analysis Date

12/06/96

Analysis Time

Method Detection Limit in µg/mL

Sample Point

AY-102 GRAB

NOTE: FOR TOC: The Reported Result is

< 40.

µg of Carbon/mL

Note:

<

8.28E+02

0 RWS 12/6/96

8.26e2 µg/mL

$$SpG = 0.998$$

Unit conversion calculations

$$8.28e2 \mu\text{g/g} \times 0.998 \text{ g/mL} = 8.26e2 \mu\text{g/mL}$$

Data Entered By:	RTS	Date:	12/06/96
Signature of Chemist:	<i>RWS</i>	Date:	12/6/96

SAMPLE.WB1 REV 1.0

342100ML

195.1

TIC/TOC : LA-342-100 (E-0)

LIQUIDS/SOLIDS

HNF-SD-WM-DP-222, REV. 0

Type	Sample Vial Data	TIC	TOC
SPIKE	Sample Volume in mL (SS)	0.2014	
Work List	Final Coulometer Reading in μg (C1)	163.4	
14066	Spiked Vial Data		
Test Code	Sample Volume in mL (SPK SS)	0.2517	
TIC-02	Amount of Spike Std. in mL (SPK VOL)	0.500	
Matrix	Final Coulometer Reading in μg (C2)	514.5	
	Spike Book Number	22N12F	
Batch Number	Spike Standard Value in $\mu\text{g}/\text{mL}$ (SPK CONC)	602	
Rerun			
Sample Prep			
Sample #	Percent Spike Recovery = $(C2 - C1 * (\text{SPK SS}) / \text{SS}) / ((\text{SPK CONC}) * (\text{SPK VOL})) * 100$		
S96T005455			
Instrument Code	QC Actual in $\mu\text{g}/\text{mL}$ = Spike Value ($\mu\text{g}/\text{mL}$)		
TIC01	QC Found in $\mu\text{g}/\text{mL}$ = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
RTS			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
12/06/96			
Analysis Date			
12/06/96			
Analysis Time			
	QC Actual in $\mu\text{g}/\text{mL}$	TIC	TOC
		6.02E+02	
Sample Point	QC Found in $\mu\text{g}/\text{mL}$	6.21E+02	
AY-102 GRAB	Percent Spike Recovery	103.1	

Data Entered By:	RTS	Date: 12/06/96
Signature of Chemist:	<i>RWS</i>	Date: 12/6/96

SPIKE.WB1 REV 1.1

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

Type	Sample Size in mL	SS	TIC	TOC
SAMPLE/DUP	Dilution Factor	(DF)	0.2513	
Work List	µg of Carbon in Sample	(C1)	1	1
14066	µg of Carbon from Baseline	(C2)	218.1	
Test Code			3.8	
TIC-02				

Matrix
LIQUID
Batch Number

Rerun

 $\mu\text{g of Carbon/mL} = (C1 - C2) * DF / SS$

Sample Prep

 $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$ $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

Sample #

S96T005456

Instrument Code

TIC01

Prepared By

RTS

Chemist

RWS

Analyst

PJM

Date Complete

12/06/96

Analysis Date

12/06/96

Analysis Time

Method Detection Limit in µg/mL

Sample Point

AY-102 GRAB

NOTE: FOR TOC: The Reported Result is

< 40.

TIC	TOC
5	40

µg of Carbon/mL

Note:

<

8.53E+02

RWS 12/6/96

8.51e2 µg/mL

$$SpG = 0.998$$

Unit conversion calculations

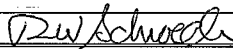
$$8.53e2 \mu\text{g/g} \times 0.998 \text{ g/mL} = 8.51e2 \mu\text{g/mL}$$

Data Entered By:

RTS

Date: 12/06/96

Signature of Chemist:



Date: 12/6/96

SAMPLE.WB1 REV 1.0

342100ML

197

HNF-SD-WM-DP-222, REV. 0

RADIOCHEMICAL ANALYSIS

HNF-SD-WM-DP-222, REV. 0

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LABCORE Completed RadChem Report for Worklist#: 14095

Analyst: rga

Instrument: GEA02

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-102 Grab. Sample size is on traveler.Std:Tnkfus 1.0ml.new

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	GEA-01	CO60-02	LIQUID	7.853e-03	7.43e-03	94.614 % Recovery
1 STD	0	0	GEA-01	CO60-02M	LIQUID	1	2.65	2.650 % Ct Error
1 STD	0	0	GEA-01	CS13702	LIQUID	7.700e-03	7.25e-03	94.156 % Recovery
1 STD	0	0	GEA-01	CS13702M	LIQUID	1	3.70	3.700 % Ct Error
2 BLNK	0	0	GEA-01	CO60-02	LIQUID	1	<2.63e-5	uCi/mL
2 BLNK	0	0	GEA-01	CS13702	LIQUID	1	<7.51e-5	uCi/mL
3 SAMPLE	S96T005367	0	GEA-01	CO60-02	LIQUID	N/A	< 5.785e-05	578.5e-007 uCi/mL
3 SAMPLE	S96T005367	0	GEA-01	CO60-02M	LIQUID	N/A	n/a	0.0e+000 % Ct Error
3 SAMPLE	S96T005367	0	GEA-01	CS13702	LIQUID	N/A	2.260e+00	0.0e+000 uCi/mL
3 SAMPLE	S96T005367	0	GEA-01	CS13702M	LIQUID	N/A	0.160	0.0e+000 % Ct Error
4 DUP	S96T005367	0	GEA-01	CO60-02	LIQUID	<5.78e-5	<6.90e-5	RPD
4 DUP	S96T005367	0	GEA-01	CO60-02M	LIQUID	1	n/a	% Ct Error
4 DUP	S96T005367	0	GEA-01	CS13702	LIQUID	2.26e+00	2.27e+00	0.442 RPD
4 DUP	S96T005367	0	GEA-01	CS13702M	LIQUID	1	0.160	0.160 % Ct Error
5 SAMPLE	S96T005457	0	GEA-01	CO60-02	LIQUID	N/A	< 6.511e-05	651.1e-007 uCi/mL
5 SAMPLE	S96T005457	0	GEA-01	CO60-02M	LIQUID	N/A	n/a	0.0e+000 % Ct Error
5 SAMPLE	S96T005457	0	GEA-01	CS13702	LIQUID	N/A	2.230e+00	0.0e+000 uCi/mL
5 SAMPLE	S96T005457	0	GEA-01	CS13702M	LIQUID	N/A	0.160	0.0e+000 % Ct Error
6 DUP	S96T005457	0	GEA-01	CO60-02	LIQUID	<6.51e-5	<7.16e-5	RPD
6 DUP	S96T005457	0	GEA-01	CO60-02M	LIQUID	1	n/a	% Ct Error
6 DUP	S96T005457	0	GEA-01	CS13702	LIQUID	2.23e+00	2.27e+00	0.877 RPD
6 DUP	S96T005457	0	GEA-01	CS13702M	LIQUID	1	0.160	0.160 % Ct Error
7 SAMPLE	S96T005458	0	GEA-01	CO60-02	LIQUID	N/A	< 8.141e-05	814.1e-007 uCi/mL
7 SAMPLE	S96T005458	0	GEA-01	CO60-02M	LIQUID	N/A	n/a	0.0e+000 % Ct Error
7 SAMPLE	S96T005458	0	GEA-01	CS13702	LIQUID	N/A	2.270e+00	0.0e+000 uCi/mL
7 SAMPLE	S96T005458	0	GEA-01	CS13702M	LIQUID	N/A	0.190	0.0e+000 % Ct Error
8 DUP	S96T005458	0	GEA-01	CO60-02	LIQUID	<8.14e-5	<7.20e-5	RPD
8 DUP	S96T005458	0	GEA-01	CO60-02M	LIQUID	1	n/a	% Ct Error
8 DUP	S96T005458	0	GEA-01	CS13702	LIQUID	2.27e+00	2.23e+00	0.877 RPD
8 DUP	S96T005458	0	GEA-01	CS13702M	LIQUID	1	0.190	0.190 % Ct Error
9 SAMPLE	S96T005459	0	GEA-01	CO60-02	LIQUID	N/A	< 7.010e-05	701.0e-007 uCi/mL
9 SAMPLE	S96T005459	0	GEA-01	CO60-02M	LIQUID	N/A	n/a	0.0e+000 % Ct Error
9 SAMPLE	S96T005459	0	GEA-01	CS13702	LIQUID	N/A	1.980e+00	0.0e+000 uCi/mL
9 SAMPLE	S96T005459	0	GEA-01	CS13702M	LIQUID	N/A	0.200	0.0e+000 % Ct Error
10 DUP	S96T005459	0	GEA-01	CO60-02	LIQUID	<7.01e-5	<8.72e-5	RPD
10 DUP	S96T005459	0	GEA-01	CO60-02M	LIQUID	1	n/a	% Ct Error
10 DUP	S96T005459	0	GEA-01	CS13702	LIQUID	1.95e+00	2.30e+00	16.471 RPD
10 DUP	S96T005459	0	GEA-01	CS13702M	LIQUID	1	0.190	0.190 % Ct Error

Comments Section:

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 14095

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
-----	------	---------	-----	------	--------	--------	-------	-------------	------

Comments for sample# S96T005367 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T005457 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T005458 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T005459 and test @GEA-01 .
DL=0 => n/a.

Final page for worklist# 14095

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

 12/3/96
Reviewer Signature _____ Date _____

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 14095

Analyst:

KJA

Instrument: GEA00

21

Book#

QBS6

Method: LA-548-121

Rev/Mod

E-0

Worklist Comment: AY-102 Grab. Sample size is on traveler. Std: Tnkfus 1.0ml.new

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@GEA-01	LIQUID		
2 BLNK			@GEA-01	LIQUID		
3 SAMPLE	S96T005367 0		@GEA-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4 DUP	S96T005367 0		@GEA-01	LIQUID		
5 SAMPLE	S96T005457 0		@GEA-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
6 DUP	S96T005457 0		@GEA-01	LIQUID		
7 SAMPLE	S96T005458 0		@GEA-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
8 DUP	S96T005458 0		@GEA-01	LIQUID		
9 SAMPLE	S96T005459 0		@GEA-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
10 DUP	S96T005459 0		@GEA-01	LIQUID		

Final page for worklist # 14095

Analyst Signature

Date

11/28/96

Analyst Signature

Date

12/3/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

 * 222-S Laboratory Counting Room 29-NOV-1996 20:50:46.95 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<< HNF-SD-WM-OP-222, REV. 0
 Worklist #: 14095
 Sample ID: WL14095-STD
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

>>>>>>> COUNT INFORMATION <<<<<<<<<
 Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2032.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:50:05.10 sec
 Dead Time: 0.2%

Verified by:

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
 Sample Count Time: 29-NOV-1996 20:00:01.79
 Decayed to: 29-NOV-1996 20:00:01.79
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
 Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.79	11928	1.14	246.02	240	11	2.3		EU-152	17.4
									CO-57	5.74
									EU-154	12.1
0	165.87	81	1.36	332.12	329	7	11.2			
0	247.49	1491	1.20	495.27	488	13	11.8		EU-154	12.0
0	344.02	604	1.27	688.24	683	9	17.2		EU-152	1.57
0	444.09	158	1.92	888.32	883	10	59.9			
0	591.64	538	1.60	1183.33	1180	9	14.4			
0	661.39*	5224	1.54	1322.80	1314	18	3.7		CS-137	7.25
0	691.97	154	1.62	1383.95	1380	9	43.4		CO-57	11.7
0	723.07	1707	1.56	1446.13	1441	12	6.8		EU-154	10.9
0	756.48	380	1.47	1512.94	1509	10	20.3			
0	778.80	198	1.79	1557.59	1553	12	42.5		EU-152	2.07
0	872.92	934	1.87	1745.83	1739	14	11.6		EU-154	11.6
0	892.72	58	1.31	1785.41	1783	7	86.6			
0	964.02	136	1.29	1928.04	1922	13	66.4		EU-152	1.54
0	995.85	723	1.83	1991.69	1983	16	15.5		EU-154	11.8
0	1004.35	1169	1.65	2008.70	2004	12	8.7		EU-154	11.1
0	1085.69	85	1.14	2171.40	2167	9	67.7		EU-152	1.56
0	1112.01	147	1.36	2224.05	2218	14	52.8		EU-152	2.03
0	1172.83	3759	2.03	2345.72	2336	21	4.0		CO-60	7.38
0	1245.85	56	2.06	2491.79	2488	9	52.0			

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1274.02	2022	1.96	2548.15	2539	20	4.7		EU-154	12.3
0	1332.04	3436	2.04	2664.24	2654	20	3.6		CO-60	7.48
0	1396.71	27	1.88	2793.63	2788	13	67.2			
0	1407.82*	157	2.02	2815.85	2808	18	18.6		EU-152	1.71
0	1493.53	28	1.87	2987.35	2984	8	45.8			
0	1596.25	82	2.24	3192.92	3187	18	25.0			

Total number of lines in spectrum 26
Number of unidentified lines 8
Number of lines tentatively identified by NID 18 69.23%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
GO-57	271.80D	1.000	1.168E+02	1.168E+02	0.508E+02	43.45	Keyline
CO-60	5.27Y	1.000	7.435E+00	7.435E+00	0.197E+00	2.65	
CS-137	30.00Y	1.000	7.250E+00	7.250E+00	0.268E+00	3.70	
EU-152	13.54Y	1.000	1.655E+00	1.655E+00	0.190E+00	11.48	
EU-154	8.59Y	1.000	1.167E+01	1.167E+01	0.037E+01	3.19	

Total Activity : 1.448E+02 1.448E+02

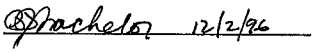
Grand Total Activity : 1.448E+02 1.448E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA
			(uCi/L) HNF-SD-WM-DP-222, REV. 0
BE-7	547.	477.59	9.4882E-01
NA-22	2018.	1274.53	4.3852E-01
NA-24	25.	1368.55	5.3137E-02
K-40	116.	1460.75	1.1005E+00
CR-51	626.	320.08	7.5688E-01
MN-54	319.	834.83	1.1966E-01
CO-56	366.	846.76	1.2978E-01
CO-58	336.	810.78	1.2042E-01
FE-59	262.	1099.25	2.4608E-01
SE-75	672.	264.66	1.1844E-01
SR-85	485.	514.01	1.0256E-01
Y-88	5.	1836.06	2.9456E-02
NB-94	1082.	871.09	2.2850E-01
ZRNB-95	1970.	724.18	6.0295E-01
RU-103	494.	497.08	1.0619E-01
RURH-106	355.	621.93	1.9840E+00
AG-108m	2023.	722.94	2.9358E-01
CD-109	1265.	88.03	2.7307E+00
AG-110M	559.	657.76	1.3671E-01
SN-113	540.	391.69	1.2791E-01
TE-123m	695.	159.00	5.8989E-02
SB-124	362.	602.73	9.9093E-02
SB-125	516.	427.89	2.9347E-01
TE-125m	1055.	109.27	2.4077E+01
I-131	496.	364.48	9.1768E-02
CS-134	351.	604.70	9.7974E-02
BA-140	423.	537.31	3.9161E-01
LA-140	83.	1596.21	1.1239E-01
CEPR-144	789.	133.51	9.3857E-01
EU-155	1190.	105.31	3.4345E-01
HG-203	662.	279.20	8.7468E-02
TL-208	667.	277.36	1.1281E+00
BI-212	365.	727.18	1.7117E+00
PB-212	814.	238.63	1.6281E-01
BI-214	382.	609.31	2.2423E-01
PB-214	575.	351.92	3.8967E-01
RA-224	828.	240.99	1.8225E+00
RA-226	828.	186.10	1.6789E+00
AC-228	351.	911.21	5.0812E-01
TH-228	1140.	84.37	7.9592E+00
TH-229	1264.	88.47	3.9576E-01
PA-233	610.	312.17	1.9169E-01
UTH-233	1181.	245.34	8.1510E+01
PA-234M	527.	1001.03	3.0667E-01
TH-234	783.	63.29	3.8422E+00
U-235	827.	185.71	1.0195E-01
NP-237	1339.	86.48	8.4310E-01
NP-239	1184.	106.12	3.2502E-01
PU-239	705.	129.30	7.7536E+02
AM-241	763.	59.54	6.0386E-01
AM-243	841.	74.67	1.8581E-01

 * 222-S Laboratory Counting Room 29-NOV-1996 21:56:52.46

 >>>>>>> SAMPLE INFORMATION <<<<<<<<< HNF-SD-WM-DP-222, REV. 0
 Worklast #: 14095
 Sample ID: WL14095-BLK
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00
 Removed by: 
 >>>>>>> COUNT INFORMATION <<<<<<<<<
 Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2033.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:50:00.46 sec
 Dead Time: 0.0%
 Verified by: 
 >>>>>>> ANALYSIS INFORMATION <<<<<<<<<
 Sample Count Time: 29-NOV-1996 21:06:13.26
 Decayed to: 29-NOV-1996 21:06:13.26
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK
 >>>>>>> CALIBRATION INFORMATION <<<<<<<<<
 Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	352.54*	39	3.92	705.27	699	15	84.7			

Summary of Nuclide Activity
Sample ID : WL14095-BLK

HNF-SD-WM-DP-222, REV. 0 Page : 2
Acquisition date : 29-NOV-1996 21:06:13

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	22.	477.59	1.9118E-01
NA-22	10.	1274.53	3.0263E-02
NA-24	3.	1368.55	1.8247E-02
K-40	105.	1460.75	1.0452E+00
CR-51	51.	320.08	2.1521E-01
MN-54	16.	834.83	2.6950E-02
CO-56	20.	846.76	3.0355E-02
CO-57	77.	122.06	1.9672E-02
CO-58	12.	810.78	2.2740E-02
FE-59	16.	1099.25	6.1093E-02
CO-60	7.	1332.50	2.6334E-02
SE-75	59.	264.66	3.5014E-02
SR-85	43.	514.01	3.0663E-02
Y-88	3.	1836.06	2.2817E-02
NB-94	22.	871.09	3.2889E-02
ZRNB-95	22.	724.18	6.3741E-02
RU-103	27.	497.08	2.4966E-02
RURH-106	14.	621.93	3.9217E-01
AG-108m	19.	722.94	2.8396E-02
CD-109	69.	88.03	6.3902E-01
AG-110M	24.	657.76	2.8621E-02
SN-113	34.	391.69	3.2014E-02
TE-123m	83.	159.00	2.0416E-02
SB-124	25.	602.73	2.5967E-02
SB-125	39.	427.89	8.0390E-02
TE-125m	68.	109.27	6.1165E+00
I-131	37.	364.48	2.5044E-02
CS-134	23.	604.70	2.5001E-02
CS-137	135.	661.66	7.5078E-02
BA-140	22.	537.31	9.0071E-02
LA-140	1.	1596.21	1.2336E-02
CEPR-144	83.	133.51	3.0484E-01
EU-152	4.	1408.01	1.0130E-01
EU-154	10.	1274.51	8.7556E-02
EU-155	68.	105.31	8.2098E-02
HG-203	68.	279.20	2.8073E-02
TL-208	61.	277.36	3.4227E-01
BI-212	22.	727.18	4.2263E-01
PB-212	88.	238.63	5.3563E-02
BI-214	50.	609.31	8.0982E-02
PB-214	63.	351.92	1.2903E-01
RA-224	63.	240.99	5.0454E-01
RA-226	63.	186.10	4.6239E-01
AC-228	21.	911.21	1.2495E-01
TH-228	68.	84.37	1.9387E+00
TH-229	70.	88.47	9.3112E-02
PA-233	53.	312.17	5.6689E-02
UTH-233	81.	245.34	2.1415E+01
PA-234M	14.	1001.03	5.0276E-02
TH-234	72.	63.29	1.1623E+00
U-235	64.	185.71	2.8324E-02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	63.	86.48	1.8251E-01
NP-239	74.	106.12	8.1500E-02
PU-239	68.	129.30	2.4150E+02
AM-241	53.	59.54	1.5892E-01
AM-243	69.	74.67	5.3406E-02

```

*****
* 222-S Laboratory Counting Room 29-NOV-1996 22:57:18.47
*
*****
>>>>>>>> SAMPLE INFORMATION <<<<<<<<<
Worklist #: 14095 HNF-SD-WM-DP-222, REV. 0
Sample ID: S96T005367-SAM Removed by:
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

>>>>>>>> COUNT INFORMATION <<<<<<<<<
Detector ID: GEA2
File Number: dka300:[spec.GEA2]2g2034.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:53:55.35 sec
Dead Time: 7.3%

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
Sample Count Time: 29-NOV-1996 22:02:45.20
Decayed to: 29-NOV-1996 22:02:45.20
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: LMHS
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61
*****

```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	185.90*	819	1.21	372.15	370	6	87.9		RA-226	10.3
0	661.38*	1631220	1.55	1322.77	1314	18	0.2		CS-137	2.264E+03
0	795.48	346	1.51	1590.96	1587	10	50.4			
0	1321.75	743	2.59	2643.64	2634	18	15.8			

Total number of lines in spectrum 4
Number of unidentified lines 1
Number of lines tentatively identified by NID 3 75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error Flags
CS-137	30.00Y	1.000	2.264E+03	2.264E+03	0.004E+03	0.16
RA-226	1600.00Y	1.000	1.027E+01	1.027E+01	0.903E+01	87.93 <i>burned</i>
Total Activity :			2.274E+03	2.274E+03		

Grand Total Activity : 2.274E+03 2.274E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	52828.	477.59	9.3232E+00
NA-22	263.	1274.53	1.5823E-01
NA-24	23.	1368.55	5.1081E-02
K-40	122.	1460.75	1.1257E+00
CR-51	43517.	320.08	6.3130E+00
MN-54	1752.	834.83	2.8039E-01
CO-56	1754.	846.76	2.8408E-01
CO-57	46865.	122.06	4.8406E-01
CO-58	1939.	810.78	2.8935E-01
FE-59	651.	1099.25	3.8811E-01
CO-60	33.	1332.50	5.7846E-02
SE-75	48770.	264.66	1.0088E+00
SR-85	27826.	514.01	7.7717E-01
Y-88	6.	1836.06	3.1363E-02
NB-94	1481.	871.09	2.6735E-01
ZRNB-95	2934.	724.18	7.3589E-01
RU-103	33835.	497.08	8.7882E-01
RURH-106	12407.	621.93	1.1733E+01
AG-108m	2897.	722.94	3.5137E-01
CD-109	41072.	88.03	1.5560E+01
AG-110M	72645.	657.76	1.5590E+00
SN-113	47629.	391.69	1.2010E+00
TE-123m	48283.	159.00	4.9163E-01
SB-124	13005.	602.73	5.9402E-01
SB-125	55141.	427.89	3.0326E+00
TE-125m	43625.	109.27	1.5481E+02
I-131	44699.	364.48	8.7163E-01
CS-134	13043.	604.70	5.9756E-01
BA-140	20710.	537.31	2.7404E+00
LA-140	12.	1596.21	4.2991E-02
CEPR-144	47775.	133.51	7.3045E+00
EU-152	31.	1408.01	2.8325E-01
EU-154	263.	1274.51	4.5969E-01
EU-155	42680.	105.31	2.0566E+00
HG-203	46495.	279.20	7.3288E-01
TL-208	46822.	277.36	9.4502E+00
BI-212	2917.	727.18	4.8379E+00
PB-212	53860.	238.63	1.3243E+00
BI-214	12428.	609.31	1.2786E+00
PB-214	43785.	351.92	3.5355E+00
RA-224	53285.	240.99	1.4622E+01
AC-228	1232.	911.21	9.5232E-01
TH-228	40664.	84.37	4.7540E+01
TH-229	41117.	88.47	2.2568E+00
PA-233	43875.	312.17	1.6255E+00
UTH-233	52669.	245.34	5.4441E+02
PA-234M	797.	1001.03	3.7698E-01
TH-234	38390.	63.29	2.6908E+01
U-235	61099.	185.71	8.7645E-01
NP-237	40755.	86.48	4.6511E+00
NP-239	42819.	106.12	1.9556E+00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	47897.	129.30	6.3898E+03
AM-241	37785.	59.54	4.2500E+00
AM-243	39774.	74.67	1.2779E+00

* 222-S Laboratory Counting Room 29-NOV-1996 23:57:41.69

>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #: 14095
Sample ID: S96T005367-DUP
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

HNF-SD-WM-DP-222, REV. 0

Removed by:

>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID: GEA2
File Number: dka300:[spec.GEA2]2g2035.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:53:55.56 sec
Dead Time: 7.3%

Verified by:

B. Rachel 12/2/96

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time: 29-NOV-1996 23:03:08.20
Decayed to: 29-NOV-1996 23:03:08.20
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: LMHS
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.38*	1632618	1.55	1322.77	1314	18	0.2		CS-137	2.266E+03
0	795.79	224	0.97	1591.56	1588	9	71.7			
0	1321.55	751	3.17	2643.24	2635	20	15.9			
0	1437.95	11	1.10	2876.15	2874	5	69.3			

Total number of lines in spectrum 4
Number of unidentified lines 2
Number of lines tentatively identified by NID 2 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.266E+03	2.266E+03	0.004E+03	0.16	
Total Activity :			2.266E+03	2.266E+03			

Grand Total Activity : 2.266E+03 2.266E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	52715.	477.59	9.3132E+00
NA-22	279.	1274.53	1.6319E-01
NA-24	23.	1368.55	5.0608E-02
K-40	125.	1460.75	1.1398E+00
CR-51	43405.	320.08	6.3049E+00
MN-54	1760.	834.83	2.8098E-01
CO-56	1723.	846.76	2.8152E-01
CO-57	47144.	122.06	4.8550E-01
CO-58	1922.	810.78	2.8807E-01
FE-59	611.	1099.25	3.7607E-01
CO-60	47.	1332.50	6.9032E-02
SE-75	48636.	264.66	1.0074E+00
SR-85	27639.	514.01	7.7455E-01
Y-88	5.	1836.06	3.0431E-02
NB-94	1464.	871.09	2.6581E-01
ZRNB-95	2903.	724.18	7.3207E-01
RU-103	33873.	497.08	8.7931E-01
RURH-106	12296.	621.93	1.1681E+01
AG-108m	2929.	722.94	3.5330E-01
CD-109	40731.	88.03	1.5495E+01
AG-110M	73099.	657.76	1.5639E+00
SN-113	47604.	391.69	1.2007E+00
TE-123m	48009.	159.00	4.9023E-01
SB-124	12912.	602.73	5.9189E-01
SB-125	55112.	427.89	3.0318E+00
TE-125m	43691.	109.27	1.5493E+02
I-131	45144.	364.48	8.7596E-01
CS-134	12900.	604.70	5.9426E-01
BA-140	20675.	537.31	2.7382E+00
LA-140	5.	1596.21	2.8707E-02
CEPR-144	48366.	133.51	7.3496E+00
EU-152	26.	1408.01	2.5630E-01
EU-154	279.	1274.51	4.7395E-01
EU-155	42631.	105.31	2.0554E+00
HG-203	46524.	279.20	7.3311E-01
TL-208	46821.	277.36	9.4501E+00
BI-212	2868.	727.18	4.7969E+00
PB-212	54399.	238.63	1.3309E+00
BI-214	12606.	609.31	1.2877E+00
PB-214	44175.	351.92	3.5514E+00
RA-224	53478.	240.99	1.4649E+01
RA-226	61730.	186.10	1.4494E+01
AC-228	1190.	911.21	9.3593E-01
TH-228	40608.	84.37	4.7507E+01
TH-229	40612.	88.47	2.2429E+00
PA-233	43559.	312.17	1.6196E+00
UTH-233	52462.	245.34	5.4334E+02
PA-234M	809.	1001.03	3.7979E-01
TH-234	38045.	63.29	2.6787E+01
U-235	61088.	185.71	8.7637E-01
NP-237	40547.	86.48	4.6392E+00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	42907.	106.12	1.9576E+00
PU-239	48176.	129.30	6.4084E+03
AM-241	38084.	59.54	4.2668E+00
AM-243	39553.	74.67	1.2743E+00

 * 222-S Laboratory Counting Room 30-NOV-1996 01:00:51.81

>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
 Worklist #: 14095
 Sample ID: S96TOO5457-SAM
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

[Signature]

>>>>>>> COUNT INFORMATION <<<<<<<<<<
 Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2036.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:53:58.12 sec
 Dead Time: 7.4%

Verified by:

[Signature] 12/2/96

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
 Sample Count Time: 30-NOV-1996 00:06:14.88
 Decayed to: 30-NOV-1996 00:06:14.88
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	32.14*	695	2.25	64.83	63	6	95.6			
0	186.14*	1249	1.12	372.64	370	7	65.7		RA-226	15.7
0	661.38*	1649054	1.55	1322.78	1314	18	0.2		CS-137	2.288E+03
0	1322.15	686	2.95	2644.46	2637	19	17.5			

Summary of Nuclide Activity
Sample ID : S96TO05457-SAM

HNF-SD-WM-DP-222, REV. 0

Page : 2

Acquisition date : 30-NOV-1996 00:06:14

Total number of lines in spectrum 4
Number of unidentified lines 2
Number of lines tentatively identified by NID 2 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error Flags
CS-137	30.00Y	1.000	2.288E+03	2.288E+03	0.004E+03	0.16
RA-226	1600.00Y	1.000	1.566E+01	1.566E+01	1.029E+01	65.67
Total Activity :			2.304E+03	2.304E+03		

Grand Total Activity : 2.304E+03 2.304E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	53343.	477.59	9.3686E+00
NA-22	319.	1274.53	1.7424E-01
NA-24	23.	1368.55	5.0131E-02
K-40	115.	1460.75	1.0954E+00
CR-51	44125.	320.08	6.3570E+00
MN-54	1814.	834.83	2.8526E-01
CO-56	1744.	846.76	2.8322E-01
CO-57	47604.	122.06	4.8786E-01
CO-58	1923.	810.78	2.8811E-01
FE-59	622.	1099.25	3.7930E-01
CO-60	41.	1332.50	6.5111E-02
SE-75	49344.	264.66	1.0148E+00
SR-85	28120.	514.01	7.8126E-01
Y-88	3.	1836.06	2.1518E-02
NB-94	1515.	871.09	2.7041E-01
ZRNB-95	2987.	724.18	7.4256E-01
RU-103	33926.	497.08	8.8000E-01
RURH-106	12495.	621.93	1.1775E+01
AG-108m	3038.	722.94	3.5982E-01
CD-109	41407.	88.03	1.5623E+01
AG-110M	73290.	657.76	1.5659E+00
SN-113	48483.	391.69	1.2117E+00
TE-123m	48494.	159.00	4.9270E-01
SB-124	13192.	602.73	5.9826E-01
SB-125	55524.	427.89	3.0431E+00
TE-125m	44259.	109.27	1.5593E+02
I-131	45425.	364.48	8.7868E-01
CS-134	13292.	604.70	6.0324E-01
BA-140	20885.	537.31	2.7520E+00
LA-140	15.	1596.21	4.7909E-02
CEPR-144	48991.	133.51	7.3969E+00
EU-152	24.	1408.01	2.4931E-01
EU-154	319.	1274.51	5.0649E-01
EU-155	43234.	105.31	2.0699E+00
HG-203	46756.	279.20	7.3494E-01
TL-208	47059.	277.36	9.4741E+00
BI-212	2918.	727.18	4.8385E+00
PB-212	54640.	238.63	1.3338E+00
BI-214	12603.	609.31	1.2876E+00
PB-214	44589.	351.92	3.5695E+00
RA-224	54232.	240.99	1.4752E+01
AC-228	1275.	911.21	9.6872E-01
TH-228	41108.	84.37	4.7799E+01
TH-229	41448.	88.47	2.2658E+00
PA-233	44581.	312.17	1.6385E+00
UTH-233	53179.	245.34	5.4704E+02
PA-234M	918.	1001.03	4.0471E-01
TH-234	38514.	63.29	2.6952E+01
U-235	61862.	185.71	8.8190E-01
NP-237	41527.	86.48	4.6949E+00
NP-239	43412.	106.12	1.9691E+00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	48089.	129.30	6.4026E+03
AM-241	37971.	59.54	4.2605E+00
AM-243	40035.	74.67	1.2820E+00

 * 222-S Laboratory Counting Room 30-NOV-1996 02:00:11.96

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 14095
 Sample ID: S96T005457-DUP
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

Michael

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2037.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:53:55.41 sec
 Dead Time: 7.3%

Verified by:

Michael 12/2/96

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 30-NOV-1996 01:05:38.39
 Decayed to: 30-NOV-1996 01:05:38.39
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	186.20*	838	1.57	372.76	370	6	85.8		RA-226	10.5
0	604.67	416	0.98	1209.38	1207	7	79.1		CS-134	0.468
0	661.38*	1631804	1.54	1322.77	1314	18	0.2		CS-137	2.265E+03
0	796.01	307	1.86	1592.01	1587	10	56.1		CS-134	0.497
0	1321.75	774	2.71	2643.64	2635	17	14.6			

Total number of lines in spectrum 5
Number of unidentified lines 1
Number of lines tentatively identified by NID 4 80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-134	2.06Y	1.000	4.867E-01	4.867E-01	2.228E-01	45.77	
CS-137	30.00Y	1.000	2.265E+03	2.265E+03	0.004E+03	0.16	
RA-226	1600.00Y	1.000	1.052E+01	1.052E+01	0.902E+01	85.81	all Pa.
Total Activity :			2.276E+03	2.276E+03			

Grand Total Activity : 2.276E+03 2.276E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	52618.	477.59	9.3047E+00
NA-22	255.	1274.53	1.5601E-01
NA-24	29.	1368.55	5.6825E-02
K-40	112.	1460.75	1.0820E+00
CR-51	43865.	320.08	6.3382E+00
MN-54	1793.	834.83	2.8361E-01
CO-56	1759.	846.76	2.8444E-01
CO-57	46936.	122.06	4.8443E-01
CO-58	1979.	810.78	2.9229E-01
FE-59	608.	1099.25	3.7507E-01
CO-60	50.	1332.50	7.1584E-02
SE-75	48457.	264.66	1.0056E+00
SR-85	27828.	514.01	7.7719E-01
Y-88	4.	1836.06	2.6347E-02
NB-94	1453.	871.09	2.6477E-01
ZRNB-95	2888.	724.18	7.3009E-01
RU-103	33523.	497.08	8.7476E-01
RURH-106	12179.	621.93	1.1625E+01
AG-108m	2938.	722.94	3.5382E-01
CD-109	40921.	88.03	1.5531E+01
AG-110M	72653.	657.76	1.5591E+00
SN-113	47660.	391.69	1.2014E+00
TE-123m	48004.	159.00	4.9021E-01
SB-124	13040.	602.73	5.9482E-01
SB-125	55008.	427.89	3.0289E+00
TE-125m	43296.	109.27	1.5423E+02
I-131	44548.	364.48	8.7016E-01
BA-140	20513.	537.31	2.7274E+00
LA-140	7.	1596.21	3.1960E-02
CEPR-144	47819.	133.51	7.3078E+00
EU-152	21.	1408.01	2.3073E-01
EU-154	255.	1274.51	4.5312E-01
EU-155	42970.	105.31	2.0635E+00
HG-203	46589.	279.20	7.3363E-01
TL-208	46463.	277.36	9.4140E+00
BI-212	2741.	727.18	4.6900E+00
PB-212	54266.	238.63	1.3293E+00
BI-214	12542.	609.31	1.2844E+00
PB-214	43684.	351.92	3.5315E+00
RA-224	53650.	240.99	1.4673E+01
AC-228	1232.	911.21	9.5222E-01
TH-228	40705.	84.37	4.7564E+01
TH-229	40811.	88.47	2.2483E+00
PA-233	43931.	312.17	1.6265E+00
UTH-233	52239.	245.34	5.4218E+02
PA-234M	820.	1001.03	3.8233E-01
TH-234	38330.	63.29	2.6887E+01
U-235	61023.	185.71	8.7590E-01
NP-237	40893.	86.48	4.6590E+00
NP-239	42847.	106.12	1.9563E+00
PU-239	47635.	129.30	6.3723E+03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	37994.	59.54	4.2618E+00
AM-243	39435.	74.67	1.2724E+00

 * 222-S Laboratory Counting Room 30-NOV-1996 02:56:07.90 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 14095
 Sample ID: S96T005458-SAM
 Sample Size: 7.50000E-04 L
 Dilution Factor: 1.00000E+00

Removed by:

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2038.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:52:53.48 sec
 Dead Time: 5.5%

Verified by:

B. Rachel 12/2/96

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 30-NOV-1996 02:02:29.59
 Decayed to: 30-NOV-1996 02:02:29.59
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.37*	1228768	1.54	1322.76	1314	17	0.2		CS-137	2.274E+03
0	795.67	216	1.76	1591.33	1588	10	60.0			
0	1322.11	333	2.91	2644.36	2638	16	22.4			
0	1460.40*	18	2.08	2921.06	2911	18128	9		K-40	0.520

Summary of Nuclide Activity
Sample ID : S96T005458

HNF-SD-WM-DP-222, REV. 0 Page : 2
Acquisition date : 30-NOV-1996 02:02:29

Total number of lines in spectrum 4
Number of unidentified lines 1
Number of lines tentatively identified by NID 3 75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.000	5.200E-01	5.200E-01	6.704E-01	128.93	0.19
CS-137	30.00Y	1.000	2.274E+03	2.274E+03	0.004E+03	0.19	
Total Activity :			2.274E+03	2.274E+03			

Grand Total Activity : 2.274E+03 2.274E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39460.	477.59	1.0744E+01
NA-22	130.	1274.53	1.4845E-01
NA-24	16.	1368.55	5.7016E-02
CR-51	32707.	320.08	7.2973E+00
MN-54	956.	834.83	2.7620E-01
CO-56	939.	846.76	2.7703E-01
CO-57	35148.	122.06	5.5894E-01
CO-58	1084.	810.78	2.8844E-01
FE-59	336.	1099.25	3.7152E-01
CO-60	36.	1332.50	8.1405E-02
SE-75	36458.	264.66	1.1630E+00
SR-85	20906.	514.01	8.9818E-01
Y-88	5.	1836.06	3.9275E-02
NB-94	845.	871.09	2.6927E-01
ZRNB-95	1620.	724.18	7.2919E-01
RU-103	25215.	497.08	1.0115E+00
RURH-106	9030.	621.93	1.3347E+01
AG-108m	1682.	722.94	3.5693E-01
CD-109	30868.	88.03	1.7986E+01
AG-110M	54115.	657.76	1.7941E+00
SN-113	35420.	391.69	1.3809E+00
TE-123m	36112.	159.00	5.6690E-01
SB-124	9464.	602.73	6.7565E-01
SB-125	41083.	427.89	3.4902E+00
TE-125m	33085.	109.27	1.7976E+02
I-131	33352.	364.48	1.0039E+00
CS-134	9506.	604.70	6.8017E-01
BA-140	15030.	537.31	3.1127E+00
LA-140	6.	1596.21	4.0526E-02
CEPR-144	36502.	133.51	8.5131E+00
EU-152	5.	1408.01	1.4391E-01
EU-154	130.	1274.51	4.3102E-01
EU-155	31989.	105.31	2.3739E+00
HG-203	35015.	279.20	8.4800E-01
TL-208	35308.	277.36	1.0942E+01
BI-212	1634.	727.18	4.8282E+00
PB-212	40676.	238.63	1.5345E+00
BI-214	9039.	609.31	1.4539E+00
PB-214	33297.	351.92	4.0685E+00
RA-224	40370.	240.99	1.6969E+01
RA-226	45590.	186.10	1.6607E+01
AC-228	682.	911.21	9.4448E-01
TH-228	30864.	84.37	5.5223E+01
TH-229	30932.	88.47	2.6099E+00
PA-233	32859.	312.17	1.8756E+00
UTH-233	39632.	245.34	6.2967E+02
PA-234M	470.	1001.03	3.8590E-01
TH-234	28882.	63.29	3.1119E+01
U-235	45217.	185.71	1.0053E+00
NP-237	30803.	86.48	5.3913E+00
NP-239	32022.	106.12	2.2547E+00

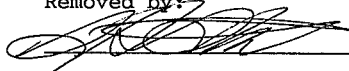
Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	36018.	129.30	7.3880E+03
AM-241	28633.	59.54	4.9329E+00
AM-243	29909.	74.67	1.4775E+00

 * 222-S Laboratory Counting Room 30-NOV-1996 03:53:15.41

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 14095
 Sample ID: S96T005458-DUP
 Sample Size: 7.50000E-04 L
 Dilution Factor: 1.00000E+00

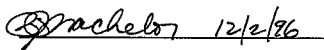
Removed by:



>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2039.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:52:54.34 sec
 Dead Time: 5.5%

Verified by:

 12/2/96

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 30-NOV-1996 02:59:37.72
 Decayed to: 30-NOV-1996 02:59:37.72
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.37*	1236016	1.54	1322.76	1314	18	0.2		CS-137	2.287E+03
0	795.54	236	1.78	1591.07	1587	10	56.0			
0	1322.30	282	2.05	2644.75	2640	16	30.0			

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.287E+03	2.287E+03	0.004E+03	0.19	
Total Activity :			2.287E+03	2.287E+03			

Grand Total Activity : 2.287E+03 2.287E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39034.	477.59	1.0685E+01
NA-22	163.	1274.53	1.6597E-01
NA-24	16.	1368.55	5.5426E-02
K-40	136.	1460.75	1.5892E+00
CR-51	33053.	320.08	7.3358E+00
MN-54	993.	834.83	2.8137E-01
CO-56	976.	846.76	2.8245E-01
CO-57	35294.	122.06	5.6010E-01
CO-58	1030.	810.78	2.8117E-01
FE-59	358.	1099.25	3.8344E-01
CO-60	29.	1332.50	7.2028E-02
SE-75	36309.	264.66	1.1606E+00
SR-85	20641.	514.01	8.9246E-01
Y-88	1.	1836.06	1.7564E-02
NB-94	858.	871.09	2.7134E-01
ZRNB-95	1566.	724.18	7.1686E-01
RU-103	25269.	497.08	1.0126E+00
RURH-106	9045.	621.93	1.3358E+01
AG-108m	1589.	722.94	3.4694E-01
CD-109	31018.	88.03	1.8029E+01
AG-110M	55009.	657.76	1.8088E+00
SN-113	35548.	391.69	1.3834E+00
TE-123m	36349.	159.00	5.6876E-01
SB-124	9412.	602.73	6.7376E-01
SB-125	41348.	427.89	3.5014E+00
TE-125m	32815.	109.27	1.7902E+02
I-131	33883.	364.48	1.0118E+00
CS-134	9513.	604.70	6.8042E-01
BA-140	15445.	537.31	3.1554E+00
LA-140	2.	1596.21	2.5283E-02
CEPR-144	36497.	133.51	8.5125E+00
EU-152	17.	1408.01	2.7520E-01
EU-154	162.	1274.51	4.8196E-01
EU-155	32292.	105.31	2.3851E+00
HG-203	35442.	279.20	8.5315E-01
TL-208	35527.	277.36	1.0976E+01
BI-212	1566.	727.18	4.7259E+00
PB-212	40762.	238.63	1.5361E+00
BI-214	9053.	609.31	1.4550E+00
PB-214	33043.	351.92	4.0535E+00
RA-224	40401.	240.99	1.6976E+01
RA-226	46644.	186.10	1.6798E+01
AC-228	760.	911.21	9.9712E-01
TH-228	30743.	84.37	5.5114E+01
TH-229	30957.	88.47	2.6109E+00
PA-233	32908.	312.17	1.8770E+00
UTH-233	39798.	245.34	6.3098E+02
PA-234M	457.	1001.03	3.8056E-01
TH-234	28868.	63.29	3.1112E+01
U-235	46198.	185.71	1.0162E+00
NP-237	30811.	86.48	5.3921E+00

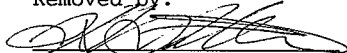
Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	32422.	106.12	2.2687E+00
PU-239	36107.	129.30	7.3972E+03
AM-241	28786.	59.54	4.9461E+00
AM-243	29958.	74.67	1.4787E+00

* 222-S Laboratory Counting Room 30-NOV-1996 04:48:19.58

>>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 14095
 Sample ID: S96T005459-SAM
 Sample Size: 7.50000E-04 L
 Dilution Factor: 1.00000E+00

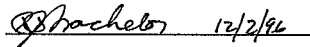
Removed by:



>>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2040.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:52:26.89 sec
 Dead Time: 4.7%

Verified by:



>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 30-NOV-1996 03:55:07.10
 Decayed to: 30-NOV-1996 03:55:07.10
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.37*	1052901	1.54	1322.76	1314	18	0.2		CS-137	1.948E+03
0	1322.00	244	2.06	2644.15	2638	17	30.9			
0	1460.30*	37	1.96	2920.87	2911	21	66.7		K-40	1.08

Total number of lines in spectrum 3
Number of unidentified lines 1
Number of lines tentatively identified by NID 2 66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.000	1.076E+00	1.076E+00	0.717E+00	66.67	0.00
CS-137	30.00Y	1.000	1.948E+03	1.948E+03	0.004E+03	0.20	
Total Activity :			1.949E+03	1.949E+03			

Grand Total Activity : 1.949E+03 1.949E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	33500.	477.59	9.8990E+00
NA-22	120.	1274.53	1.4237E-01
NA-24	15.	1368.55	5.5245E-02
CR-51	27621.	320.08	6.7060E+00
MN-54	716.	834.83	2.3893E-01
CO-56	655.	846.76	2.3148E-01
CO-57	29874.	122.06	5.1530E-01
CO-58	796.	810.78	2.4720E-01
FE-59	241.	1099.25	3.1469E-01
CO-60	27.	1332.50	7.0100E-02
SE-75	31139.	264.66	1.0748E+00
SR-85	17559.	514.01	8.2314E-01
Y-88	3.	1836.06	3.0422E-02
NB-94	616.	871.09	2.2988E-01
ZRNB-95	1214.	724.18	6.3118E-01
RU-103	21092.	497.08	9.2515E-01
RURH-106	7608.	621.93	1.2251E+01
AG-108m	1241.	722.94	3.0657E-01
CD-109	26295.	88.03	1.6600E+01
AG-110M	46778.	657.76	1.6680E+00
SN-113	30100.	391.69	1.2730E+00
TE-123m	30940.	159.00	5.2474E-01
SB-124	7992.	602.73	6.2087E-01
SB-125	35172.	427.89	3.2293E+00
TE-125m	27927.	109.27	1.6515E+02
I-131	28671.	364.48	9.3074E-01
CS-134	7906.	604.70	6.2033E-01
BA-140	12984.	537.31	2.8931E+00
LA-140	8.	1596.21	4.5672E-02
CEPR-144	31414.	133.51	7.8975E+00
EU-152	8.	1408.01	1.9178E-01
EU-154	120.	1274.51	4.1356E-01
EU-155	27426.	105.31	2.1981E+00
HG-203	29747.	279.20	7.8161E-01
TL-208	30210.	277.36	1.0121E+01
BI-212	1151.	727.18	4.0514E+00
PB-212	34717.	238.63	1.4176E+00
BI-214	7719.	609.31	1.3435E+00
PB-214	28398.	351.92	3.7406E+00
RA-224	34237.	240.99	1.5627E+01
RA-226	39965.	186.10	1.5549E+01
AC-228	483.	911.21	7.9491E-01
TH-228	26435.	84.37	5.1107E+01
TH-229	26286.	88.47	2.4059E+00
PA-233	28145.	312.17	1.7358E+00
UTH-233	33500.	245.34	5.7891E+02
PA-234M	349.	1001.03	3.3255E-01
TH-234	24717.	63.29	2.8788E+01
U-235	39637.	185.71	9.4124E-01
NP-237	26370.	86.48	4.9883E+00
NP-239	27520.	106.12	2.0901E+00

Minimum Detectable Activity Report (continued)

Sample ID : S96T005459-SAM

Acquisition date : 30-NOV-1996 03:55:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	30972.	129.30	6.8510E+03
AM-241	24642.	59.54	4.5762E+00
AM-243	25327.	74.67	1.3596E+00

 * 222-S Laboratory Counting Room 30-NOV-1996 05:46:08.87

>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 14095
 Sample ID: S96T005459-DUP
 Sample Size: 7.50000E-04 L
 Dilution Factor: 1.00000E+00

Removed by:

Lee Hoggan

>>>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA2
 File Number: dka300:[spec.GEA2]2g2041.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:52:55.55 sec
 Dead Time: 5.5%

Verified by:

B Rachelor 12/2/96

>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 30-NOV-1996 04:52:35.66
 Decayed to: 30-NOV-1996 04:52:35.66
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: LMHS
 Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
 Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.37*	1245411	1.54	1322.76	1314	18	0.2		CS-137	2.304E+03
0	795.58	165	0.90	1591.15	1587	9	73.5			
0	1322.09	332	2.64	2644.32	2639	13	21.5			

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.304E+03	2.304E+03	0.004E+03	0.19	
Total Activity :			2.304E+03	2.304E+03			

Grand Total Activity : 2.304E+03 2.304E+03

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39449.	477.59	1.0742E+01
NA-22	168.	1274.53	1.6888E-01
NA-24	21.	1368.55	6.5113E-02
K-40	100.	1460.75	1.3618E+00
CR-51	32741.	320.08	7.3011E+00
MN-54	1012.	834.83	2.8412E-01
CO-56	971.	846.76	2.8172E-01
CO-57	35853.	122.06	5.6452E-01
CO-58	1159.	810.78	2.9819E-01
FE-59	354.	1099.25	3.8143E-01
CO-60	42.	1332.50	8.7244E-02
SE-75	36716.	264.66	1.1671E+00
SR-85	21122.	514.01	9.0281E-01
Y-88	9.	1836.06	5.1713E-02
NB-94	863.	871.09	2.7208E-01
ZRNB-95	1701.	724.18	7.4712E-01
RU-103	25400.	497.08	1.0152E+00
RURH-106	9005.	621.93	1.3329E+01
AG-108m	1744.	722.94	3.6349E-01
CD-109	31209.	88.03	1.8085E+01
AG-110M	55444.	657.76	1.8160E+00
SN-113	35872.	391.69	1.3897E+00
TE-123m	36348.	159.00	5.6875E-01
SB-124	9625.	602.73	6.8137E-01
SB-125	41523.	427.89	3.5088E+00
TE-125m	33068.	109.27	1.7971E+02
I-131	33693.	364.48	1.0090E+00
CS-134	9612.	604.70	6.8398E-01
BA-140	15327.	537.31	3.1434E+00
LA-140	9.	1596.21	4.8596E-02
CEPR-144	36895.	133.51	8.5587E+00
EU-152	17.	1408.01	2.8001E-01
EU-154	168.	1274.51	4.9012E-01
EU-155	32405.	105.31	2.3893E+00
HG-203	35519.	279.20	8.5408E-01
TL-208	35490.	277.36	1.0970E+01
BI-212	1645.	727.18	4.8449E+00
PB-212	41219.	238.63	1.5447E+00
BI-214	9273.	609.31	1.4726E+00
PB-214	33408.	351.92	4.0767E+00
RA-224	40826.	240.99	1.7065E+01
RA-226	46671.	186.10	1.6803E+01
AC-228	678.	911.21	9.4218E-01
TH-228	30729.	84.37	5.5102E+01
TH-229	31391.	88.47	2.6291E+00
PA-233	33438.	312.17	1.8920E+00
UTH-233	39765.	245.34	6.3072E+02
PA-234M	480.	1001.03	3.8993E-01
TH-234	29390.	63.29	3.1392E+01
U-235	46240.	185.71	1.0166E+00
NP-237	30959.	86.48	5.4050E+00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	32564.	106.12	2.2737E+00
PU-239	36635.	129.30	7.4510E+03
AM-241	28752.	59.54	4.9431E+00
AM-243	29941.	74.67	1.4783E+00

LABCORE Completed RadChem Report for Worklist#: 15409

Analyst: krq

Instrument: AB10

Book#

Method: Rev/Mod

Worklist Comment: RR#1. Use 0.50ml. sac

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	SR90-01 SR90-01 LIQUID		1.39E-03	1.48E-3	106.475	% Recovery
1 STD	0	0	SR90-01 SR90-01C LIQUID		100	9.30E+01	93.000	% Recovery
1 STD	0	0	SR90-01 SR90-01E LIQUID		1.00	1.70E+00	1.700	% Ct. Err
2 BLNK	0	0	SR90-01 SR90-01 LIQUID		1	7.24E-4	72.400e-005	uCi/mL
2 BLNK	0	0	SR90-01 SR90-01C LIQUID		100	8.53E+01	85.300	% Recovery
2 BLNK	0	0	SR90-01 SR90-01E LIQUID		1.00	1.48E+01	14.800	uCi/mL
3 BLNK/BKG	0	0	SR90-01 SR90-01 LIQUID		1	3.68E+00	3.680	BLNK/BKG
4 SAMPLE	S96T005367	0	SR90-01 SR90-01 LIQUID	N/A		9.29E-02	924.0e-007	uCi/mL
4 SAMPLE	S96T005367	0	SR90-01 SR90-01C LIQUID	N/A		9.09E+01	0.0e+000	% Recovery
4 SAMPLE	S96T005367	0	SR90-01 SR90-01E LIQUID	N/A		9.61E-01	0.0e+000	% Ct. Error
5 DUP	S96T005367	0	SR90-01 SR90-01 LIQUID		9.29E-2	9.89E-2	6.257 RPD	
5 DUP	S96T005367	0	SR90-01 SR90-01C LIQUID		100	8.59E+01	85.900	% Recovery
5 DUP	S96T005367	0	SR90-01 SR90-01E LIQUID		1.00	8.57E-01	0.957	% Ct. Err
6 SAMPLE	S96T005457	0	SR90-01 SR90-01 LIQUID	N/A		1.87E-02	947.0e-007	uCi/mL
6 SAMPLE	S96T005457	0	SR90-01 SR90-01C LIQUID	N/A		8.91E+01	0.0e+000	% Recovery
6 SAMPLE	S96T005457	0	SR90-01 SR90-01E LIQUID	N/A		2.19E+00	0.0e+000	% Ct. Error
7 DUP	S96T005457	0	SR90-01 SR90-01 LIQUID		1.87E-2	1.72E-2	8.357 RPD	
7 DUP	S96T005457	0	SR90-01 SR90-01C LIQUID		100	8.78E+01	87.800	% Recovery
7 DUP	S96T005457	0	SR90-01 SR90-01E LIQUID		1.00	2.31E+00	2.310	% Ct. Err
8 SAMPLE	S96T005458	0	SR90-01 SR90-01 LIQUID	N/A		1.29E-02	945.0e-007	uCi/mL
8 SAMPLE	S96T005458	0	SR90-01 SR90-01C LIQUID	N/A		8.89E+01	0.0e+000	% Recovery
8 SAMPLE	S96T005458	0	SR90-01 SR90-01E LIQUID	N/A		2.66E+00	0.0e+000	% Ct. Error
9 DUP	S96T005458	0	SR90-01 SR90-01 LIQUID		1.29E-2	1.15E-2	11.475 RPD	
9 DUP	S96T005458	0	SR90-01 SR90-01C LIQUID		100	9.31E+01	93.100	% Recovery
9 DUP	S96T005458	0	SR90-01 SR90-01E LIQUID		1.00	2.75E+00	2.750	% Ct. Err
10 SAMPLE	S96T005459	0	SR90-01 SR90-01 LIQUID	N/A		1.55E-02	926.0e-007	uCi/mL
10 SAMPLE	S96T005459	0	SR90-01 SR90-01C LIQUID	N/A		9.00E+01	0.0e+000	% Recovery
10 SAMPLE	S96T005459	0	SR90-01 SR90-01E LIQUID	N/A		2.39E+00	0.0e+000	% Ct. Error
11 DUP	S96T005459	0	SR90-01 SR90-01 LIQUID		1.55E-2	1.50E-2	3.278 RPD	
11 DUP	S96T005459	0	SR90-01 SR90-01C LIQUID		100	9.06E+01	90.600	% Recovery
11 DUP	S96T005459	0	SR90-01 SR90-01E LIQUID		1.00	2.42E+00	2.420	% Ct. Err

Final page for worklist# 15409

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 15409

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
-----	------	---------	-----	------	--------	--------	-------	-------------	------

Units shown for QC (BLK/BKG) may not reflect the actual units.

HMF-SD-WM-DP-222 REV. 0
LABCORE Data Entry Template for Worklist# 15409

Analyst: KRO Instrument: AB00 10 Book# 62B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: RR#1. Use 0.50ml. sac

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@SR90-01	LIQUID		
2 BLNK			@SR90-01	LIQUID		
3 BLNK/BKG			@SR90-01	LIQUID		
4 SAMPLE	S96T005367 0		@SR90-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5 DUP	S96T005367 0		@SR90-01	LIQUID		
6 SAMPLE	S96T005457 0		@SR90-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7 DUP	S96T005457 0		@SR90-01	LIQUID		
8 SAMPLE	S96T005458 0		@SR90-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
9 DUP	S96T005458 0		@SR90-01	LIQUID		
10 SAMPLE	S96T005459 0		@SR90-01	LIQUID	96001366	AY-102 GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
11 DUP	S96T005459 0		@SR90-01	LIQUID		

Final page for worklist # 15409

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Data Entry Comments:

HNF-SD-WM-DP-222, REV. 0

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

				STANDARD
Type	DETECTOR NUMBER	10	CARRIER ADDED in mL (CVA)	1.000
STD	TOTAL COUNTS (TC)	13640	GROSS WEIGHT (W2)	7.7270
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT (W1)	7.6340
15409	BACKGROUND in cpm (BKG)	11.4	NET WEIGHT (W3)	0.0930
Test Code	SAMPLE VOLUME in mL (SS)	1.000	DELTA TIME (HOURS) (DT)	8.17
@SR90-01	DILUTION FACTOR (DF)	1		
Matrix	DIGEST DILUTION FACTOR DDF	1		
LIQUID	SAMPLE COUNT RATE (Rs)	1352.60	SR-90 EFFICIENCY FACTO (C1)	0.4051
Batch Number	CRITICAL LEVEL (Lc)	2.03	Y-90 EFFICIENCY FACTOR (C2)	0.4503
96012022	TIME OF SEPARATION (ST)	23:00	Rmax	N/A
Rerun	DATE OF SEPARATION (SD)	12/09/96	DETECTION LIMIT (Ld)	4.16
0	TIME OF COUNT (TOC)	07:10	Sr-89/90 CONC. in µCi/L	1.4785E+00
Sample Prep	DATE OF COUNT (DOC)	12/10/96		
N/A	STANDARD BOOK #	62B56		
Sample #	STANDARD VALUE in µCi/mL	1.3949E-03		
WL15409				
Instrument Code				
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)			
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=Lc AND RS>=0 OR REPLACE RS WITH Lc IF RS<0			
VAR	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)			
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))			
SAC	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)			
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100			
KRQ	NOTE: Expected weight = CVA * 0.1			
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
12/10/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100			
Analysis Date	Sr-89/90 CONCENTRATION			DETECTION LEVEL
12/09/96	1.48E-03 µCi/mL			
Analysis Time				
11:00 PM	RELATIVE COUNTING ERROR			4.55E-06 µCi/L
Sample Point				
AY-102 GRAB	PERCENT CARRIER RECOVERY			93.0%

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996

STANDARD.WB1 REV 2.0

22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	BLNK
BLNK	TOTAL COUNTS	(TC)	419	GROSS WEIGHT	(W2)	7.7254
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6401
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	0.0853
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	8.58
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR (DDF)		1			
LIQUID	SAMPLE COUNT RATE	(Rs)	30.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96012022	TIME OF SEPARATION	(ST)	23:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	12/09/96	DETECTION LIMIT	(Ld)	4.16
0	TIME OF COUNT	(TOC)	07:35	Sr-89/90 CONC in µCi/L		7.2396E-01
Sample Prep	DATE OF COUNT	(DOC)	12/10/96			
N/A						
Sample #						
WL15409						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
12/10/96						
Analysis Date						DETECTION LEVEL 9.87E-05 µCi/mL
12/09/96	Sr-89/90 CONCENTRATION	7.24E-04		µCi/mL		
Analysis Time						
11:00 PM	RELATIVE COUNTING ERROR	14.8%				
Sample Point						
AY-102 GRAB	PERCENT CARRIER RECOVERY	85.3%				

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996

BLANK.WB1 REV 2.0

22010NML

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	SAMPLE
SAMPLE	TOTAL COUNTS	(TC)	41904	GROSS WEIGHT	(W2)	7.7343
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6434
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	0.0909
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	8.83
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR (DDF)		1			
LIQUID	SAMPLE COUNT RATE	(Rs)	4179.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96012022	TIME OF SEPARATION	(ST)	23:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	12/09/96	DETECTION LIMIT	(Ld)	4.16
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in $\mu\text{Ci/L}$		9.2852E+01
Sample Prep	DATE OF COUNT	(DOC)	12/10/96			
N/A						
Sample #						
S96T005367						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
12/10/96						
Analysis Date						DETECTION LEVEL
12/09/96	Sr-89/90 CONCENTRATION 9.29E-02 $\mu\text{Ci/mL}$					
Analysis Time						
11:00 PM	RELATIVE COUNTING ERROR 1.0%					
Sample Point						9.24E-05
AY-102 GRAB	PERCENT CARRIER RECOVERY 90.9%					$\mu\text{Ci/mL}$

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996
SAMPLE.WB1 REV 2.0		22010NML	

WORKBOOK PAGE: DUP5

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	DUP	
DUP	TOTAL COUNTS	(TC)	42296	GROSS WEIGHT	(W2)	1.000	
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.7398	
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	7.6539	
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	0.0859	
@SR90-01	DILUTION FACTOR	DF	1			9.08	
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	4218.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4051	
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503	
96012022	TIME OF SEPARATION	(ST)	23:00	Rmax		N/A	
Rerun	DATE OF SEPARATION	(SD)	12/09/96	DETECTION LIMIT	(Ld)	4.16	
0	TIME OF COUNT	(TOC)	08:05	Sr-89/90 CONC in µCi/L		9.8934E+01	
Sample Prep	DATE OF COUNT	(DOC)	12/10/96				
N/A							
Sample #							
S96T005367							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96						
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
12/10/96							
Analysis Date						DETECTION LEVEL 9.75E-05 µCi/mL	
12/09/96	Sr-89/90 CONCENTRATION 9.89E-02 µCi/mL						
Analysis Time							
11:00 PM	RELATIVE COUNTING ERROR 1.0%						
Sample Point							
AY-102 GRAB	PERCENT CARRIER RECOVERY 85.9%						

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist: <i>SA Cath</i>	SAC	Date:	DEC 11 1996
SAMPLE.WB1 REV 2.0	22010NML		

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	SAMPLE
SAMPLE	TOTAL COUNTS	(TC)	8314	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6729
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	0.0891
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	8.33
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	820.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96012022	TIME OF SEPARATION	(ST)	00:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	12/10/96	DETECTION LIMIT	(Ld)	4.16
0	TIME OF COUNT	(TOC)	08:20	Sr-89/90 CONC in $\mu\text{Ci/L}$		1.8680E+01
Sample Prep	DATE OF COUNT	(DOC)	12/10/96			
N/A						
Sample #						
S96T005457						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $\text{RS} \leq \text{Lc}$ and $\text{RS} > 0$ or Replace RS with Lc if $\text{RS} < 0$					
Prepared By	$\text{RS} * \text{DF} * \text{DDF} / ((\text{C1} + \text{C2} * (1 - e \text{ to the power of } ((-\text{natural log } 2) / 64.2 * \text{DT}))) * \text{SS} * \text{REC} * 2220000)$					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery $((\text{W2} - \text{W1}) / (\text{CVA} * 0.1000))$					
Chemist	Relative Counting Error = (The Square Root of $(\text{TC} + \text{BKG} * \text{CT}) / (\text{TC} - \text{BKG} * \text{CT})$) * 1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = $((\text{DOC} - \text{SD}) * 24) + (\text{TOC} - \text{ST}) / 100$					
12/10/96						
Analysis Date	Sr-89/90 CONCENTRATION		1.87E-02	$\mu\text{Ci/mL}$		DETECTION LEVEL 9.47E-05 $\mu\text{Ci/mL}$
12/09/96						
Analysis Time	RELATIVE COUNTING ERROR		2.2%			
11:00 PM						
Sample Point						
AY-102 GRAB	PERCENT CARRIER RECOVERY		89.1%			

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996

SAMPLE.WB1 REV 2.0

22010NML

WORKBOOK PAGE: DUP7

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	DUP
DUP	TOTAL COUNTS	(TC)	7563	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.7250
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	7.6372
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	0.0878
@SR90-01	DILUTION FACTOR	DF	1			8.50
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	744.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96012022	TIME OF SEPARATION	(ST)	00:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	12/10/96	DETECTION LIMIT	(Ld)	4.16
0	TIME OF COUNT	(TOC)	08:30	Sr-89/90 CONC in µCi/L		1.7192E+01
Sample Prep	DATE OF COUNT	(DOC)	12/10/96			
N/A						
Sample #						
S96T005457						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
12/10/96						
Analysis Date						DETECTION LEVEL
12/09/96	Sr-89/90 CONCENTRATION		1.72E-02	µCi/mL		
Analysis Time						
11:00 PM	RELATIVE COUNTING ERROR		2.3%			
Sample Point						9.60E-05
AY-102 GRAB	PERCENT CARRIER RECOVERY		87.8%			µCi/mL

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996
SAMPLE.WB1 REV 2.0		22010NML	

WORKBOOK PAGE: SAM8

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	SAMPLE
SAMPLE	TOTAL COUNTS	(TC)	5778	GROSS WEIGHT	(W2)	7.7490
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6601
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	0.0889
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	8.83
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR (DDF)		1			
LIQUID	SAMPLE COUNT RATE	(Rs)	566.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96012022	TIME OF SEPARATION	(ST)	00:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	12/10/96	DETECTION LIMIT	(Ld)	4.16
0	TIME OF COUNT	(TOC)	08:50	Sr-89/90 CONC in $\mu\text{Ci/L}$		1.2868E+01
Sample Prep	DATE OF COUNT	(DOC)	12/10/96			
N/A						
Sample #						
S96T005458						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((-\text{natural log } 2) / 64.2 * DT))) * SS * REC * 2220000)$
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery $((W2 - W1) / (CVA * 0.1000))$
Chemist	Relative Counting Error = (The Square Root of $(TC + BKG * CT) / (TC - BKG * CT)$) * 1.96
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = $((DOC - SD) * 24) + (TOC - ST) / 100$
12/10/96	

Analysis Date	Sr-89/90 CONCENTRATION	1.29E-02	$\mu\text{Ci/mL}$	DETECTION LEVEL
12/09/96				
Analysis Time	RELATIVE COUNTING ERROR	2.7%		9.45E-05
11:00 PM				
Sample Point				$\mu\text{Ci/mL}$
AY-102 GRAB	PERCENT CARRIER RECOVERY	88.9%		

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996
SAMPLE.WB1 REV 2.0	22010NML		

WORKBOOK PAGE: DUP9

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	DUP	
DUP	TOTAL COUNTS	(TC)	5408	GROSS WEIGHT	(W2)	1.000	
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.7514	
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	7.6583	
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	0.0931	
@SR90-01	DILUTION FACTOR	DF	1			9.08	
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	529.40	Sr-90 EFFICIENCY FACTOR	(C1)	0.4051	
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503	
96012022	TIME OF SEPARATION	(ST)	00:00	Rmax		N/A	
Rerun	DATE OF SEPARATION	(SD)	12/10/96	DETECTION LIMIT	(Ld)	4.16	
0	TIME OF COUNT	(TOC)	09:05	Sr-89/90 CONC in $\mu\text{Ci/L}$		1.1456E+01	
Sample Prep	DATE OF COUNT	(DOC)	12/10/96				
N/A							
Sample #							
S96T005458							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96						
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
12/10/96							
Analysis Date						DETECTION LEVEL	
12/09/96	Sr-89/90 CONCENTRATION		1.15E-02	$\mu\text{Ci/mL}$			
Analysis Time							
11:00 PM	RELATIVE COUNTING ERROR		2.8%				
Sample Point						9.00E-05 $\mu\text{Ci/mL}$	
AY-102 GRAB	PERCENT CARRIER RECOVERY		93.1%				

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist: <i>[Signature]</i>	SAC	Date:	DEC 11 1996

SAMPLE.WB1 REV 2.0

22010NML

WORKBOOK PAGE: SAM10

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	SAMPLE	
SAMPLE	TOTAL COUNTS	(TC)	7080	GROSS WEIGHT	(W2)	1.000	
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.7150	
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	7.6250	
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	0.0900	
@SR90-01	DILUTION FACTOR	DF	1			9.67	
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	696.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4051	
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503	
96012022	TIME OF SEPARATION	(ST)	23:40	Rmax		N/A	
Rerun	DATE OF SEPARATION	(SD)	12/09/96	DETECTION LIMIT	(Ld)	4.16	
0	TIME OF COUNT	(TOC)	09:20	Sr-89/90 CONC in $\mu\text{Ci/L}$		1.5505E+01	
Sample Prep	DATE OF COUNT	(DOC)	12/10/96				
N/A							
Sample #							
S96T005459							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS < Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$						
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((- \text{natural log } 2) / 64.2 * DT))) * SS * REC * 2220000)$						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT)) * 1.96						
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
12/10/96							
Analysis Date						DETECTION LEVEL 9.26E-05 $\mu\text{Ci/mL}$	
12/10/96	Sr-89/90 CONCENTRATION						
Analysis Time							
05:20 AM	RELATIVE COUNTING ERROR						
Sample Point						9.26E-05 $\mu\text{Ci/mL}$	
AY-102 GRAB	PERCENT CARRIER RECOVERY						
	90.0%						

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996
SAMPLE.WB1 REV 2.0	22010NML		

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	DUP
DUP	TOTAL COUNTS	(TC)	6921	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.7151
15409	BACKGROUND in cpm	(BKG)	11.4	NET WEIGHT	(W3)	0.0906
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	9.92
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	680.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96012022	TIME OF SEPARATION	(ST)	23:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	12/09/96	DETECTION LIMIT	(Ld)	4.16
0	TIME OF COUNT	(TOC)	09:35	Sr-89/90 CONC in µCi/L		1.5014E+01
Sample Prep	DATE OF COUNT	(DOC)	12/10/96			
N/A						
Sample #						
S96T005459						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRQ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
12/10/96						
Analysis Date						
12/09/96	Sr-89/90 CONCENTRATION		1.50E-02	µCi/mL		DETECTION LEVEL
Analysis Time						
11:00 PM	RELATIVE COUNTING ERROR		2.4%			9.17E-05
Sample Point						µCi/mL
AY-102 GRAB	PERCENT CARRIER RECOVERY		90.6%			

Analyst:	KRQ	Date:	10-Dec-96
Signature of Chemist:	SAC	Date:	DEC 11 1996
SAMPLE.WB1 REV 2.0	22010NML		

LABCORE Completed RadChem Report for Worklist#: 14087

Analyst: knt

Instrument: AB15

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-102 Grab.Determine sample size using ludlum.Std: 1.0.new

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101 LIQUID		1.19E-04	9.81E-5	82.437	% Recovery
1 STD	0		@AM24101 AM24101 LIQUID		100.	8.80E+01	88.000	% Recovery
1 STD	0		@AM24101 AM24101 LIQUID		1.0	1.63E+00	1.630	% Ct Error
2 BLNK	0		@AM24101 AM24101 LIQUID		1	<5.63E-6		uCi/mL
2 BLNK	0		@AM24101 AM24101 LIQUID		100.0	8.81E+01	88.100	% Recovery
2 BLNK	0		@AM24101 AM24101 LIQUID		1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S96T005367	0	@AM24101 AM24101 LIQUID		N/A	1.55E-05	775.0e-008	uCi/mL
3 SAMPLE	S96T005367	0	@AM24101 AM24101 LIQUID		N/A	3.32E+00	0.0e+000	% Ct. Error
3 SAMPLE	S96T005367	0	@AM24101 AM24101 LIQUID		N/A	7.98E+01	0.0e+000	% Recovery
4 DUP	S96T005367	0	@AM24101 AM24101 LIQUID		1.55E-5	1.30E-5	17.544	RPD
4 DUP	S96T005367	0	@AM24101 AM24101 LIQUID		100.0	7.51E+01	75.100	% Recovery
4 DUP	S96T005367	0	@AM24101 AM24101 LIQUID		1.0	3.67E+00	3.670	% Ct Error
5 SAMPLE	S96T005457	0	@AM24101 AM24101 LIQUID		N/A	6.17E-06	617.0e-008	uCi/mL
5 SAMPLE	S96T005457	0	@AM24101 AM24101 LIQUID		N/A	1.00E+02	0.0e+000	% Ct. Error
5 SAMPLE	S96T005457	0	@AM24101 AM24101 LIQUID		N/A	8.60E+01	0.0e+000	% Recovery
6 DUP	S96T005457	0	@AM24101 AM24101 LIQUID		<6.17E-6	<6.61E-6		RPD
6 DUP	S96T005457	0	@AM24101 AM24101 LIQUID		100.0	8.37E+01	83.700	% Recovery
6 DUP	S96T005457	0	@AM24101 AM24101 LIQUID		1.0	1.00E+02	100.000	% Ct Error

Final page for worklist# 14087

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Relyea 4 Dec 96
Reviewer Signature Date

Validate L

LABCORE Data Entry Template for Worklist# 14087

Analyst: KNT Instrument: AM01 AS Book# C2B53

Method: LA-953-103 Rev/Mod B-D

Worklist Comment: AY-102 Grab. Determine sample size using ludlum.Std: 1.0.new

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	LIQUID		
2 BLNK			@AM24101	LIQUID		
3 SAMPLE	S96T005367 0		@AM24101	LIQUID	96001366	AY-102 GRAB
Analytes Requested: AM24101 , AM24101E, AM24101T						
4 DUP	S96T005367 0		@AM24101	LIQUID		
5 SAMPLE	S96T005457 0		@AM24101	LIQUID	96001366	AY-102 GRAB
Analytes Requested: AM24101 , AM24101E, AM24101T						
6 DUP	S96T005457 0		@AM24101	LIQUID		

Final page for worklist # 14087

Kim Thomas 12-2-96
Analyst Signature Date

Lee Kogon 12/3/96
Analyst Signature Date
C.F. Opanen 12/3/96

Data Entry Comments:

Analysis Date 12-2-96

Matrix (SOLID) (LIQUID) (EACH) - - Circle one

Tracer Book # 125B43

Analysis Time

[illegible]

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID

Am 241 and Cm 243/244: LA-953-103 (B-0)			LIQUID		STD
Type	Date Counted	DEC-02-96	Am 241 AEA Frac.	(C241)	0.46
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)	0.434
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
14087	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		3789
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.03
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		61.93
LIQUID	Detector Number	15	Am 243 cpm		58.38
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm		0
96010626	Standard Book No	62B56	AEA Count Time (min)		480
Retin	Standard Value in $\mu\text{Ci/mL}$	1.186E-04	Am 241 $\mu\text{Ci/L}$ =		9.8065E-02
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	1.2113E-02

Analyst:	KNT	Date:	12/03/96
Signature of Chemist:	JFR	Date:	4 Dec 96

STANDARD.WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

			BLNK
Type	Date Counted	DEC-02-96	Am 241 AEA Frac. (C241)
BLNK	Sample Volume In mL (SS)	1.000	Am 243 AEA Frac. (C243)
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)
14087	Tracer Volume In mL (SPKV)	0.200	Total AT Counts
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm
LIQUID	Detector Number	15	Am 243 cpm
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm
96010626			AEA Count Time (min)
Retun			Am 241 $\mu\text{Ci/L}$ =
0			< 5.6252E-03
Sample Prep			Cm 243/244 $\mu\text{Ci/L}$ =
N/A			< 5.6252E-03
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))		
WL 14087	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))		
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100		
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV		
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.		
SEH	Am 241 $\mu\text{Ci/mL}$ =	< 5.63E-06	DETECTION LEVELS In $\mu\text{Ci/mL}$
Chemist	Relative Counting Error =	100.0%	
JFR	NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
KNT	Cm 243/244 $\mu\text{Ci/mL}$ =	< 5.63E-06	5.63E-06
Date Complete	Relative Counting Error =	100.0%	Cm 243/244
12/03/96	Am 243 Tracer Recovery =	88.1%	5.63E-06
Analysis Date			
12/02/96			
Analysis Time			
05:20 AM			
Sample Point			
AY-102 GRAB			

Analyst:	KNT	Date:	12/03/96
Signature of Chemist:	JFR	Date:	4 Dec 96

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-0)			LIQUID / SOLID		SAMPLE	
Type	Date Counted	DEC-02-96	Am 241 AEA Frac.	(C241)		0.126
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)		0.75
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
14087	Tracer Volume in mL (SPKV)	0.200	Total AT Counts			1989
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)			30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)			0.03
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm			8.49
LIQUID	Detector Number	15	Am 243 cpm			50.36
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm			0
96010626			AEA Count Time (min)			480
Rerun			Am 241 $\mu\text{Ci/L}$ =			1.5544E-02
0			Cm 243/244 $\mu\text{Ci/L}$ =			< 7.7287E-03
Sample Prep						
N/A						
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
S96T005367	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
Prepared By						
SEH						
Chemist						
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.55E-05	DETECTION LEVELS In $\mu\text{Ci/mL}$			
Analyst	Relative Counting Error =	3.3%				
KNT						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					Am 241
12/03/96	Cm 243/244 $\mu\text{Ci/mL}$	< 7.73E-06	7.73E-06			
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244			
12/02/96	Am 243 Tracer Recovery =	79.8%	7.73E-06			
Analysis Time						
05:20 AM						
Sample Point						
AY-102 GRAB						

Analyst:	KNT	Date:	12/03/96
Signature of Chemist:	JFR	Date:	7 Dec 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID				DUP	
Type	Date Counted	DEC-02-96	Am 241 AEA Frac. (C241)	0.099	
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.706	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
14087	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1989	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.03	
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	6.76	
LIQUID	Detector Number	15	Am 243 cpm	48.08	
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0	
96010626			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	1.2974E-02	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 8.7221E-03	
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S96T005367	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
SEH					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.30E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	3.7%			
KNT					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241	
12/03/96	Cm 243/244 $\mu\text{Ci/mL}$	< 8.72E-06		8.72E-06	
Analysis Date	Relative Counting Error =	100.0%		Cm 243/244	
12/02/96	Am 243 Tracer Recovery =	75.1%		8.72E-06	
Analysis Time					
05:20 AM					
Sample Point					
AY-102 GRAB					

Analyst:	KNT	Date:	12/03/96
Signature of Chemist:	JFR	Date:	4 Dec 96

SAMPLE.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-0)				LIQUID / SOLID		SAMPLE	
Type	Date Counted	DEC-02-96	Am 241 AEA Frac.	(C241)			0
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)			0.871
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)			0
14087	Tracer Volume in mL (SPKV)	0.200	Total AT Counts				1846
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)				30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)				0.03
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm				0
LIQUID	Detector Number	15	Am 243 cpm				51.02
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm				0
96010626			AEA Count Time (min)				480
Rerun			Am 241 $\mu\text{Ci/L}$ =	<			6.1746E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	<			6.1746E-03
Sample Prep							
N/A							
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))						
S96T005457	Cm-243/244 $\mu\text{Ci/L}$ = (Cin * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))						
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100						
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV						
Prepared By							
SEH							
Chemist	NOTE: Am-241 Result is a LESS THAN Value.						
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.17E-06	DETECTION LEVELS In $\mu\text{Ci/mL}$				
Analyst	Relative Counting Error =	100.0%					
KNT							
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.						
12/03/96	Cm 243/244 $\mu\text{Ci/mL}$	< 6.17E-06	Am 241				
Analysis Date	Relative Counting Error =	100.0%	6.17E-06				
12/02/96	Am 243 Tracer Recovery =	86.0%	Cm 243/244				
Analysis Time							
05:20 AM							
Sample Point							
AY-102 GRAB							

Analyst:	KNT	Date:	12/03/96
Signature of Chemist:	JFR	Date:	4 Dec 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

			DUP		
Type	Date Counted	DEC-02-96	Am 241 AEA Frac. (C241)	0	
DUP	Sample Volume In mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.836	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
14087	Tracer Volume In mL (SPKV)	0.200	Total AT Counts	1872	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	125B43	Background In cpm (Bkg)	0.03	
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	0	
LIQUID	Detector Number	15	Am 243 cpm	41.16	
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0	
96010626			AEA Count Time (min)	480	
Retun			Am 241 $\mu\text{Ci/L}$ =	< 6.6094E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 6.6094E-03	
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S96T005457	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
SEH					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.61E-06	DETECTION LEVELS In $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
KNT					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
12/03/96	Cm 243/244 $\mu\text{Ci/mL}$	< 6.61E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	6.61E-06		
12/02/96	Am 243 Tracer Recovery =	83.7%	Cm 243/244		
Analysis Time					
05:20 AM					
Sample Point					
AY-102 GRAB					

Analyst:	KNT	Date:	12/03/96
Signature of Chemist:	JFR	Date:	4 Dec 96
SAMPLE.WB1 REV 1.2	953103ML		

DATA REDUCTION REPORT

SAMPLE
WL14087-STD-AM
File ID: 5a5979.CNF

Counted on: 12/ 2/96 @20:35
Detector: AEA5
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1126.6	1126.6	302.189	302.189	18.000	12.926	9.000	2.855
2	1045.5	1045.5	256.380	256.217	18.000	11.288	9.000	2.318
3	38.8	38.8	140.215	140.117	184.000	1.000	92.000	0.100
4	10.8	10.8	52.626	52.193	88.000	188.326	44.000	70.456
5?	0.4	0.1	42.320	42.000	4.000	0.100	2.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am241	0.460	5.479	5.464	0.0150.06	61.93	1.1	147.1	0.663E-04
	Pu238		5.487	5.464	0.023			192.0	0.865E-04
2	Am243	0.434	5.270	5.253	0.0170.05	58.38	1.3	131.7	0.593E-04
3		0.023		4.719	0.00	3.06	5.2	6.8	0.307E-05
4	U 238	0.011	4.184	4.314	-.1300.87	1.43	12.1	4.2	0.187E-05
	U 235		4.386	4.314	0.072			5.6	0.253E-05
5		????		4.267		0.00	7905.		
Totals:			0.927	<--valid peaks only-->			124.80		

DETECTOR CALIBRATION

Energy (MeV) = 4.074 + (0.0046)*Channel
Energy range (MeV): 4.074 TO 6.429
Efficiency = 0.4479 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	64612.0	100.000
Smoothed	64612.1	100.000
Composite fit	59910.7	92.724
Residuals	4701.3	7.276

Analyzed by: 
LMHS

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 8415.5

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Raw	Data	Dump	for	AEA	Spectrum:	5a5979.CNF	HNF-SD-WM-DP-222, REV. 0
1	0.	0.	0.	0.	0.	0.	0.
11	5.	6.	4.	6.	9.	9.	10.
21	7.	11.	13.	9.	9.	6.	10.
31	9.	10.	11.	9.	9.	12.	9.
41	12.	14.	15.	11.	14.	4.	18.
51	16.	13.	20.	6.	12.	16.	18.
61	13.	10.	14.	12.	14.	11.	11.
71	9.	25.	12.	22.	13.	11.	14.
81	10.	17.	20.	18.	17.	23.	25.
91	19.	28.	13.	17.	13.	21.	16.
101	15.	21.	19.	24.	18.	20.	21.
111	35.	25.	26.	26.	21.	27.	25.
121	20.	27.	39.	29.	30.	28.	26.
131	35.	31.	39.	34.	31.	33.	41.
141	31.	50.	27.	35.	43.	36.	33.
151	33.	47.	40.	43.	50.	45.	44.
161	65.	39.	46.	45.	57.	49.	69.
171	78.	58.	68.	63.	65.	78.	73.
181	74.	94.	84.	64.	98.	72.	74.
191	87.	115.	116.	83.	99.	127.	120.
201	139.	117.	136.	122.	138.	147.	142.
211	153.	152.	178.	164.	169.	195.	219.
221	188.	223.	244.	259.	246.	283.	227.
231	319.	319.	317.	347.	356.	392.	396.
241	461.	537.	569.	581.	594.	649.	734.
251	907.	981.	983.	1157.	1140.	1215.	1177.
261	794.	626.	540.	461.	442.	419.	321.
271	306.	292.	259.	306.	276.	299.	302.
281	355.	387.	394.	393.	438.	418.	506.
291	600.	682.	699.	807.	785.	884.	933.
301	1188.	1198.	1162.	1145.	1025.	988.	798.
311	389.	280.	223.	196.	136.	126.	92.
321	21.	4.	5.	4.	1.	3.	0.
331	0.	3.	0.	4.	0.	1.	0.
341	2.	3.	0.	2.	1.	3.	1.
351	3.	5.	6.	3.	3.	3.	0.
361	1.	3.	1.	1.	2.	1.	0.
371	0.	0.	0.	1.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	1.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.
411	1.	0.	1.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.
431	1.	0.	0.	1.	0.	1.	0.
441	0.	1.	1.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	1.	1.	0.
471	1.	0.	0.	0.	1.	0.	0.
481	0.	0.	2.	1.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.
511	0.	0.					

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL14087-BLK-AM
 File ID: 7a7467.CNF

Counted on: 12/ 2/96 @20:34
 Detector: AEA7
 Geometry number: 1
 Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	537.9	537.9	253.833	253.833	38.000	57.917	19.000	8.998
2	15.2	15.2	117.580	117.479	178.000	1.000	89.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

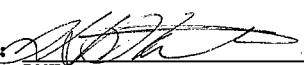
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Pu239	0.933	5.147	5.265	-.1180.27	51.36	1.2	126.6	0.570E-04
	Am243		5.270	5.265	0.005			127.8	0.576E-04
2	Np237	0.021	4.640	4.624	0.0160.00	1.17	8.7	48.3	0.217E-04
Totals:			0.955	<--valid peaks only-->			52.54		

DETECTOR CALIBRATION

Energy(MEV) = 4.072 + (0.0047)*Channel
 Energy range (MeV): 4.072 TO 6.478
 Efficiency = 0.4058 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	26417.0	100.000
Smoothed	26417.4	100.001
Composite fit	25219.5	95.467
Residuals	1197.5	4.533

Analyzed by: 

LMHS

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 4175.6

[illegible]

Raw Data Dump for AEA Spectrum: 7a7467.CNF

HNF-SD-WM-DP-222, REV. 0

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	2.	7.	4.	4.	5.	7.	3.	5.	4.	2.
21	6.	8.	3.	2.	2.	4.	6.	3.	3.	7.
31	6.	2.	4.	4.	2.	3.	3.	7.	1.	4.
41	6.	3.	6.	2.	3.	3.	5.	5.	4.	3.
51	5.	7.	10.	4.	2.	5.	5.	4.	2.	6.
61	5.	3.	9.	7.	7.	6.	8.	4.	7.	3.
71	9.	2.	7.	7.	5.	6.	9.	10.	4.	8.
81	5.	11.	9.	11.	11.	8.	14.	4.	7.	8.
91	12.	6.	9.	7.	8.	7.	14.	13.	8.	8.
101	11.	10.	13.	11.	9.	7.	14.	13.	11.	12.
111	6.	8.	13.	11.	13.	17.	22.	19.	17.	8.
121	22.	14.	10.	11.	18.	18.	14.	13.	21.	13.
131	3.	16.	11.	16.	14.	21.	8.	16.	21.	13.
141	25.	23.	13.	18.	20.	20.	22.	28.	23.	17.
151	21.	22.	23.	21.	14.	27.	21.	27.	34.	33.
161	39.	31.	40.	32.	33.	36.	34.	35.	36.	37.
171	39.	38.	33.	45.	42.	31.	35.	36.	43.	48.
181	41.	50.	36.	49.	54.	49.	51.	43.	49.	62.
191	53.	47.	64.	72.	60.	71.	69.	63.	72.	81.
201	92.	85.	87.	94.	90.	75.	95.	98.	100.	109.
211	129.	106.	112.	114.	135.	106.	132.	140.	138.	151.
221	181.	162.	174.	194.	207.	200.	209.	221.	187.	251.
231	262.	238.	237.	283.	285.	294.	279.	363.	337.	353.
241	346.	401.	411.	390.	478.	448.	477.	467.	495.	535.
251	563.	563.	511.	555.	561.	510.	505.	532.	519.	498.
261	458.	486.	466.	445.	405.	344.	358.	290.	312.	275.
271	243.	236.	196.	167.	167.	131.	147.	118.	95.	84.
281	88.	74.	71.	62.	35.	31.	25.	20.	22.	32.
291	14.	17.	12.	8.	17.	18.	11.	10.	7.	6.
301	9.	4.	6.	7.	4.	4.	1.	6.	2.	2.
311	3.	1.	6.	2.	2.	0.	4.	0.	1.	1.
321	0.	1.	0.	2.	2.	0.	1.	0.	0.	1.
331	1.	0.	0.	0.	1.	0.	0.	1.	1.	2.
341	2.	0.	0.	0.	1.	0.	1.	1.	1.	1.
351	0.	0.	1.	2.	2.	1.	2.	1.	0.	1.
361	1.	0.	1.	2.	2.	2.	1.	1.	0.	1.
371	0.	0.	0.	1.	1.	0.	0.	0.	1.	0.
381	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
441	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.
451	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	1.	3.
471	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
481	2.	0.	3.	0.	0.	0.	0.	0.	0.	0.
491	1.	0.	0.	0.	1.	0.	0.	0.	1.	1.
511	3.	0.								

DATA REDUCTION REPORT

SAMPLE
S96T5367-SAM-AM
File ID: 8a8768.CNF

Counted on: 12/ 2/96 @20:33
Detector: AEA8
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	112.9	112.9	303.137	303.137	16.000	11.619	8.000	1.548
2	808.3	808.3	255.708	255.616	18.000	13.414	9.000	2.434
3	22.7	22.7	126.298	128.318	204.000	1.000	102.000	0.100
4	4.5	4.5	81.939	81.084	24.000	76.598	12.000	1.790

PEAK RESULTS

Peak Error Limit: 30%

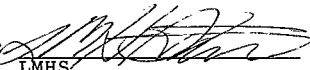
Peak ID	Isotope	AEA Frac	Peak Centroid		FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs. Diff.					
1	Am241	0.126	5.479	5.496 -0.017	0.05	8.49	3.1	36.6	0.165E-04
	Pu238		5.487	5.496 -0.009				47.8	0.215E-04
2	Pu239	0.750	5.147	5.273 -0.126	0.06	50.36	1.3	204.1	0.919E-04
	Am243		5.270	5.273 -0.003				206.1	0.928E-04
3	Np237	0.026	4.640	4.674 -0.034	0.00	1.78	6.9	120.1	0.541E-04
4	U 235	0.012	4.386	4.452 -0.066	0.36	0.78	18.6	5.6	0.250E-05
Totals:			0.915	<--valid peaks only-->		61.41			

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0047)*Channel
Energy range (MeV): 4.071 TO 6.478
Efficiency = 0.2468 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	32233.0	100.000
Smoothed	32233.0	100.000
Composite fit	29479.9	91.459
Residuals	2753.1	8.541

Analyzed by: 

LMHS

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 6123.5

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	7.	4.	3.	4.	4.	4.	2.	3.	5.
21	4.	8.	7.	6.	4.	5.	3.	8.	3.
31	5.	4.	2.	8.	1.	5.	10.	5.	6.
41	9.	6.	8.	2.	7.	4.	5.	7.	9.
51	5.	8.	9.	5.	6.	8.	10.	8.	9.
61	3.	7.	8.	12.	5.	8.	3.	6.	10.
71	10.	6.	10.	11.	10.	10.	6.	9.	11.
81	7.	14.	11.	10.	7.	8.	9.	10.	11.
91	13.	4.	13.	16.	13.	12.	11.	14.	10.
101	19.	21.	11.	11.	17.	15.	8.	14.	14.
111	16.	19.	18.	15.	9.	20.	12.	12.	16.
121	12.	20.	21.	18.	29.	32.	20.	21.	27.
131	19.	25.	14.	18.	17.	17.	15.	16.	36.
141	29.	27.	17.	35.	28.	22.	27.	30.	28.
151	30.	27.	23.	22.	32.	36.	27.	38.	32.
161	29.	36.	36.	38.	37.	46.	50.	62.	44.
171	35.	46.	46.	52.	46.	43.	48.	50.	54.
181	49.	56.	56.	73.	70.	54.	70.	62.	61.
191	80.	66.	76.	69.	75.	90.	77.	97.	104.
201	103.	97.	80.	102.	87.	125.	113.	121.	123.
211	123.	133.	148.	143.	154.	161.	164.	164.	159.
221	205.	175.	207.	206.	225.	226.	216.	252.	254.
231	260.	275.	297.	307.	332.	306.	357.	361.	376.
241	420.	461.	446.	484.	524.	599.	608.	620.	717.
251	747.	833.	895.	819.	853.	852.	849.	822.	770.
261	579.	476.	413.	343.	246.	212.	178.	125.	117.
271	72.	68.	65.	55.	55.	58.	43.	59.	50.
281	44.	47.	60.	55.	49.	70.	57.	65.	74.
291	84.	77.	67.	85.	113.	92.	105.	122.	103.
301	106.	111.	108.	122.	119.	94.	87.	78.	61.
311	39.	33.	26.	23.	22.	10.	11.	5.	4.
321	1.	3.	3.	1.	2.	0.	0.	0.	1.
331	0.	0.	0.	1.	0.	2.	1.	2.	2.
341	0.	0.	2.	2.	5.	3.	4.	2.	6.
351	1.	2.	3.	1.	3.	0.	5.	1.	2.
361	2.	1.	2.	2.	2.	7.	4.	1.	1.
371	1.	1.	0.	1.	3.	2.	3.	1.	1.
381	0.	0.	0.	2.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	1.	0.	0.	0.	3.	0.	1.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	2.	0.	0.	0.	1.	0.	0.	0.	0.
511	0.	0.							

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5367-DUP/AM
 File ID: 9a9584.CNF

Counted on: 12/ 2/96 @20:32
 Detector: AEA9
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	146.9	146.9	304.959	304.959	18.000	8.911	9.000	2.340
2	1138.1	1138.1	259.287	259.279	14.000	6.296	7.000	1.696
3	29.2	29.2	152.734	152.714	176.000	1.000	88.000	0.100
4?	4.3	4.3	144.807	145.000	176.000	1.000	88.000	0.100
5?	4.6	4.6	118.280	115.354	6.000	3.442	3.000	0.973
6	5.6	5.6	81.337	80.816	20.000	24.995	10.000	0.601

PEAK RESULTS

Peak Error Limit: 30%

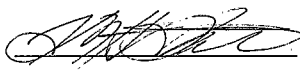
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	c/m	@95		
1	Am241	0.099	5.479	5.470	0.0090.04	6.76	3.4	19.1	0.861E-05
	Pu238		5.487	5.470	0.017			25.0	0.112E-04
2	Am243	0.706	5.270	5.260	0.0100.03	48.08	1.3	129.1	0.582E-04
3	Np237	0.034	4.769	4.770	-0.0010.00	2.32	5.9	7.1	0.319E-05
4	????			4.734		0.34	41.2		
5	????			4.598		0.17	62.9		
6	U 235	0.012	4.386	4.439	-.0530.11	0.85	13.8	4.0	0.178E-05
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Totals:		0.851	<--valid peaks only-->			58.00			

DETECTOR CALIBRATION

Energy(MEV) = 4.067 + (0.0046)*Channel
 Energy range (MeV): 4.067 TO 6.422
 Efficiency = 0.3761 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	32705.0	100.000
Smoothed	32708.7	100.011
Composite fit	28087.5	85.881
Residuals	4617.5	14.119

Analyzed by: 

[illegible]

1	0.	0.	5.	4.	4.	5.	3.	3.	1.	6.
11	5.	4.	5.	2.	3.	5.	5.	4.	2.	4.
21	6.	5.	8.	11.	5.	1.	3.	3.	3.	8.
31	5.	7.	3.	1.	3.	5.	1.	6.	1.	7.
41	6.	13.	7.	5.	8.	7.	3.	5.	5.	6.
51	4.	10.	8.	9.	8.	4.	11.	5.	9.	7.
61	9.	7.	9.	12.	12.	7.	11.	4.	4.	11.
71	4.	8.	9.	4.	6.	10.	8.	12.	8.	9.
81	14.	10.	10.	8.	9.	9.	9.	7.	13.	10.
91	2.	13.	12.	12.	12.	4.	15.	15.	6.	11.
101	15.	10.	8.	13.	9.	14.	9.	12.	17.	15.
111	15.	15.	19.	14.	18.	18.	17.	12.	24.	18.
121	12.	14.	14.	10.	15.	17.	17.	23.	21.	15.
131	18.	19.	17.	21.	18.	15.	22.	16.	20.	28.
141	32.	23.	20.	20.	26.	26.	20.	24.	13.	16.
151	33.	36.	35.	31.	20.	30.	23.	35.	24.	27.
161	27.	35.	27.	24.	28.	36.	30.	26.	40.	37.
171	29.	36.	45.	39.	45.	53.	43.	58.	45.	45.
181	53.	45.	49.	49.	43.	51.	52.	58.	54.	47.
191	80.	58.	72.	71.	74.	69.	79.	87.	78.	100.
201	82.	71.	84.	96.	98.	78.	104.	84.	112.	99.
211	128.	126.	120.	99.	135.	95.	122.	156.	136.	137.
221	134.	157.	154.	181.	174.	169.	166.	197.	198.	235.
231	216.	214.	242.	234.	221.	249.	287.	287.	278.	308.
241	320.	354.	383.	377.	413.	448.	468.	532.	582.	641.
251	629.	744.	732.	838.	929.	1026.	1075.	1218.	1255.	1292.
261	1152.	1011.	713.	465.	333.	203.	156.	139.	154.	127.
271	112.	114.	102.	93.	87.	71.	63.	41.	29.	35.
281	33.	33.	42.	25.	41.	48.	40.	45.	58.	49.
291	58.	66.	70.	62.	65.	96.	93.	105.	105.	113.
301	110.	144.	149.	174.	150.	155.	149.	131.	91.	80.
311	52.	45.	30.	24.	35.	22.	13.	11.	15.	9.
321	1.	4.	1.	1.	0.	1.	0.	0.	0.	1.
331	0.	0.	0.	0.	1.	0.	1.	1.	0.	1.
341	0.	0.	0.	1.	1.	1.	2.	2.	1.	5.
351	2.	6.	7.	2.	2.	2.	1.	3.	1.	0.
361	1.	1.	2.	0.	5.	1.	3.	1.	0.	2.
371	3.	3.	2.	6.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	3.	0.	0.
431	0.	2.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
471	2.	1.	0.	0.	3.	2.	2.	2.	0.	0.
481	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5457-SAM-AM
 File ID: 10a1092.CNF

Counted on: 12/ 2/96 @20:31
 Detector: AEA10
 Geometry number: 1
 Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	906.8	906.8	256.025	256.025	12.000	7.341	6.000	1.338
2	19.6	19.6	127.805	127.757	192.000	1.000	96.000	0.100
3?	1.2	1.2	110.762	110.000	4.000	0.000	2.000	3.758

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am243	0.871	5.270	5.249	0.0210.03	51.02	1.3	654.0	0.295E-03
2	Np237	0.026	4.640	4.659	-0.0190.00	1.53	7.4	324.4	0.146E-03
3	????			4.577		0.00	3337.		
Totals:		0.897	<--valid peaks only-->			52.55			

DETECTOR CALIBRATION

Energy(MEV) = $4.071 + (0.0046) \cdot \text{Channel}$
 Energy range (MeV): 4.071 TO 6.427
 Efficiency = 0.0788 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	28127.0	100.000
Smoothed	28127.5	100.002
Composite fit	25231.0	89.704
Residuals	2896.0	10.296

Analyzed by:

LMHS

Display Max.: 6464.6

278

Raw Data	Dump	for AEA	Spectrum:	10a1092.CNF	HNF-SD-WM-DP-222, REV. 0				
1	0.	0.	1.	2.	2.	3.	2.	3.	5.
11	4.	4.	3.	5.	1.	5.	3.	2.	7.
21	2.	2.	2.	1.	3.	2.	6.	5.	2.
31	4.	4.	4.	6.	2.	7.	5.	6.	3.
41	5.	2.	5.	4.	5.	4.	3.	6.	1.
51	6.	2.	8.	8.	6.	4.	4.	8.	5.
61	6.	8.	6.	7.	4.	11.	7.	6.	7.
71	3.	7.	10.	8.	5.	11.	7.	7.	8.
81	7.	5.	6.	8.	6.	6.	11.	10.	5.
91	9.	10.	7.	9.	9.	10.	12.	9.	8.
101	7.	5.	9.	7.	14.	15.	10.	7.	9.
111	14.	14.	10.	11.	10.	10.	13.	16.	8.
121	18.	13.	22.	18.	9.	18.	26.	24.	27.
131	17.	16.	14.	16.	18.	21.	23.	21.	17.
141	19.	13.	22.	21.	34.	19.	32.	21.	26.
151	24.	24.	29.	29.	20.	24.	33.	24.	25.
161	39.	31.	40.	29.	33.	35.	40.	41.	30.
171	37.	34.	32.	51.	29.	33.	38.	45.	50.
181	59.	62.	60.	54.	49.	54.	65.	51.	53.
191	66.	51.	67.	62.	79.	65.	88.	83.	82.
201	98.	94.	105.	107.	111.	82.	106.	101.	105.
211	127.	135.	138.	126.	138.	133.	156.	137.	182.
221	199.	191.	172.	202.	215.	218.	211.	244.	246.
231	307.	276.	316.	337.	347.	326.	396.	403.	407.
241	452.	425.	459.	507.	541.	562.	638.	695.	732.
251	791.	861.	839.	925.	966.	910.	961.	948.	813.
261	429.	273.	180.	137.	91.	87.	77.	72.	73.
271	51.	48.	38.	12.	24.	11.	5.	4.	2.
281	6.	1.	2.	4.	4.	7.	2.	3.	3.
291	1.	7.	6.	0.	4.	7.	0.	3.	7.
301	5.	10.	8.	7.	3.	6.	0.	2.	2.
311	2.	0.	0.	2.	2.	0.	3.	0.	0.
321	0.	1.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	1.	1.	0.	0.	0.	0.	1.
341	2.	1.	1.	1.	3.	2.	2.	1.	2.
351	3.	1.	0.	2.	1.	1.	0.	0.	2.
361	0.	1.	1.	0.	2.	0.	1.	0.	0.
371	0.	1.	1.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	1.	1.
431	0.	0.	0.	0.	0.	1.	0.	0.	1.
441	0.	0.	2.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	0.	0.	0.	1.	0.	0.	0.	0.
471	0.	0.	1.	0.	0.	0.	1.	0.	1.
481	4.	1.	1.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

Westinghouse Hanford CNF-SD-WM-DP-222, REV. 0
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5457-DUP-AM
 File ID: 11a1195.CNF

Counted on: 12/ 2/96 @20:30
 Detector: AEA11
 Geometry number: 1
 Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1139.3	1139.3	258.456	258.456	12.000	5.636	6.000	1.901
2	21.8	21.8	165.392	165.361	134.000	1.000	67.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

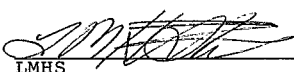
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err c/m @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am243	0.836	5.270	5.264	0.006	41.16	1.4	110.4	0.497E-04
2		0.035		4.836	0.00	1.73	6.8	4.6	0.207E-05
Totals:			0.872	<--valid peaks only-->			42.90		

DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0046)*Channel
 Energy range (MeV): 4.075 TO 6.430
 Efficiency = 0.3766 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23627.0	100.000
Smoothed	23629.0	100.008
Composite fit	20590.9	87.150
Residuals	3036.1	12.850

Analyzed by: 

LMHS

Display Max.: 7291.0

HNF-SD-WM-DP-222, REV. 0

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1	0.	0.	2.	4.	1.	2.	2.	1.	1.	2.
11	0.	1.	0.	2.	4.	1.	4.	1.	2.	4.
21	2.	1.	2.	2.	2.	3.	3.	1.	2.	2.
31	1.	2.	6.	0.	2.	5.	5.	1.	2.	3.
41	3.	0.	4.	2.	3.	4.	3.	6.	1.	1.
51	2.	5.	4.	3.	7.	4.	5.	6.	4.	4.
61	4.	1.	3.	5.	3.	4.	6.	4.	2.	1.
71	6.	3.	4.	6.	6.	8.	8.	6.	6.	4.
81	3.	4.	4.	5.	5.	4.	6.	1.	6.	6.
91	5.	4.	2.	7.	4.	8.	8.	7.	3.	3.
101	2.	4.	11.	4.	5.	5.	4.	9.	2.	4.
111	4.	7.	8.	6.	6.	4.	12.	7.	8.	6.
121	2.	9.	5.	11.	7.	4.	13.	7.	7.	10.
131	13.	9.	10.	5.	7.	9.	8.	10.	9.	8.
141	7.	4.	10.	8.	18.	17.	5.	10.	12.	19.
151	7.	10.	12.	12.	16.	12.	6.	13.	14.	14.
161	14.	17.	18.	26.	21.	24.	19.	18.	18.	17.
171	15.	16.	15.	20.	33.	14.	25.	28.	28.	25.
181	28.	16.	24.	20.	29.	30.	29.	23.	38.	32.
191	28.	35.	33.	33.	31.	41.	45.	36.	45.	48.
201	40.	51.	41.	40.	42.	52.	45.	53.	42.	56.
211	66.	50.	70.	59.	70.	67.	77.	89.	74.	77.
221	98.	84.	89.	93.	93.	93.	115.	122.	131.	132.
231	147.	138.	160.	170.	174.	183.	187.	238.	232.	262.
241	256.	279.	305.	314.	379.	391.	423.	468.	605.	558.
251	624.	750.	777.	818.	1018.	1078.	1152.	1248.	1312.	1180.
261	978.	746.	478.	312.	196.	114.	98.	71.	76.	75.
271	69.	65.	44.	45.	36.	24.	13.	12.	3.	2.
281	1.	1.	0.	1.	0.	0.	2.	1.	1.	2.
291	3.	2.	3.	5.	2.	6.	8.	4.	4.	9.
301	4.	9.	7.	6.	7.	10.	7.	4.	6.	3.
311	1.	0.	3.	0.	0.	1.	1.	2.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	1.	1.	0.	0.	0.	1.	1.	2.	1.	2.
341	1.	1.	0.	1.	0.	1.	2.	0.	2.	6.
351	5.	4.	7.	7.	2.	2.	3.	4.	3.	5.
361	1.	1.	2.	6.	1.	2.	8.	1.	1.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	1.	0.	0.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
471	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.
481	4.	1.	2.	1.	0.	1.	0.	0.	0.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed RadChem Report for Worklist#: 14090

Analyst: jmv

Instrument: AB15

Book# 62B56

Method: LA-953-103 Rev/Mod B-0

Worklist Comment: AY-102 Grab.Determine sample size using ludlum.Std:1.0.new

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101	LIQUID	1.19E-04	1.09E-4	91.597	% Recovery
1 STD	0		@AM24101 AM24101T	LIQUID	100.	8.45E+01	84.500	% Recovery
1 STD	0		@AM24101 AM24101E	LIQUID	1.0	1.87E+00	1.870	% Ct Error
2 BLNK	0		@AM24101 AM24101	LIQUID	1	<5.90E-6		uci/mL
2 BLNK	0		@AM24101 AM24101T	LIQUID	100.0	8.60E+01	86.000	% Recovery
2 BLNK	0		@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S96T005458	0	@AM24101 AM24101	LIQUID	N/A	6.65E-06	665.0e+008	UCI/mL
3 SAMPLE	S96T005458	0	@AM24101 AM24101E	LIQUID	N/A	1.00E+02	0.0e+000	% Ct. Error
3 SAMPLE	S96T005458	0	@AM24101 AM24101T	LIQUID	N/A	7.55E+01	0.0e+000	% Recovery
4 DUP	S96T005458	0	@AM24101 AM24101	LIQUID	<6.65E-6	<5.17E-6		RPD
4 DUP	S96T005458	0	@AM24101 AM24101T	LIQUID	100.0	9.19E+01	91.800	% Recovery
4 DUP	S96T005458	0	@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error
5 SAMPLE	S96T005459	0	@AM24101 AM24101	LIQUID	N/A	6.65E-06	665.0e+008	UCI/mL
5 SAMPLE	S96T005459	0	@AM24101 AM24101E	LIQUID	N/A	1.00E+02	0.0e+000	% Ct. Error
5 SAMPLE	S96T005459	0	@AM24101 AM24101T	LIQUID	N/A	7.80E+01	0.0e+000	% Recovery
6 DUP	S96T005459	0	@AM24101 AM24101	LIQUID	<6.65E-6	<6.17E-6		RPD
6 DUP	S96T005459	0	@AM24101 AM24101T	LIQUID	100.0	8.43E+01	84.300	% Recovery
6 DUP	S96T005459	0	@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error

Final page for worklist# 14090

Analyst Signature

Date

Analyst Signature

Date

John Redger
Reviewer Signature Date 6 Dec 96
Validated

LABCORE Data Entry Template for Worklist# 14090

Analyst: Jim Instrument: AM01 16 Book# 62856

Method: LA-953-103 Rev/Mod _____

Worklist Comment: AY-102 Grab. Determine sample size using ludlum. Std: 1.0. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S96T005458 0			@AM24101	LIQUID	96001366	AY-102 GRAB
Analytes Requested: AM24101 , AM24101E, AM24101T								
4	DUP	S96T005458 0			@AM24101	LIQUID		
5	SAMPLE	S96T005459 0			@AM24101	LIQUID	96001366	AY-102 GRAB
Analytes Requested: AM24101 , AM24101E, AM24101T								
6	DUP	S96T005459 0			@AM24101	LIQUID		

Final page for worklist # 14090

Jim 12-2-96
Analyst Signature Date

Sue Hogan 12/4/96
Analyst Signature Date
C.J. Quinn 12/5/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Analysis Date 12.3-96

Matrix (SOLID) (LIQUID) (EACH) <-- Circle one

Analyst

Signature: _____

Analysis Time

11,20

Tracer Book #

[illegible]

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID

				STD
Type	Date Counted	DEC-03-96	Am 241 AEA Frac. (C241)	0.498
STD	Sample Volume In mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.421
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
14090	Tracer Volume In mL (SPKV)	0.200	Total AT Counts	3753
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background In cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	49.85
LIQUID	Detector Number	15	Am 243 cpm	42.09
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0
96010627	Standard Book No	62B56	AEA Count Time (min)	480
Rerun	Standard Value In $\mu\text{Ci/mL}$	1.186E-04	Am 241 $\mu\text{Ci/L}$ =	1.0944E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.3007E-02
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
WL14090	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
SEH				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.09E-04	DETECTION LEVELS In $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	1.9%		
JMV	NOTE: Cm-243/244 Result is a LESS THAN Value.			
Date Complete	Am 241		Am 241	
12/04/96	Cm 243/244 $\mu\text{Ci/mL}$	< 1.30E-05	1.30E-05	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
12/03/96	Am 243 Tracer Recovery =	84.5%	1.30E-05	
Analysis Time				
02:20 PM				
Sample Point				
AY-102 GRAB				

Analyst:

JMV

Date: 12/04/96

Signature of Chemist:

JFR

Date: 6 Dec 96

STANDARD.WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

Type	Date Counted	DEC-03-96	Am 241 AEA Frac. (C241)	BLNK
BLNK	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.912
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
14090	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1765
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	0
LIQUID	Detector Number	15	Am 243 cpm	56.91
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0
96010627			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 5.9006E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 5.9006E-03
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
WL14090	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
WB25872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.			
SEH	Chemist	JFR	Am 241 $\mu\text{Ci/mL}$ =	< 5.90E-06
	Analyst	JMV	Relative Counting Error =	100.0%
	JMV		DETECTION LEVELS In $\mu\text{Ci/mL}$	
	Date Complete			
	12/04/96		Am 241	5.90E-06
	Analysis Date		Relative Counting Error =	100.0%
	12/03/96		Am 243 Tracer Recovery =	86.0%
	Analysis Time		Cm 243/244	5.90E-06
	02:20 PM			
	Sample Point			
	AY-102 GRAB			

Analyst:	JMV	Date:	12/04/96
Signature of Chemist:	JFR	Date:	6 Dec 96

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (B-0)**LIQUID / SOLID**

WORKBOOK FILE: JAMS

Am 241 and Cm 243/244: LA-953-103 (B-0)			LIQUID / SOLID		SAMPLE	
Type	Date Counted	DEC-03-96	Am 241 AEA Frac.	(C241)	0	
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)	0.922	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0	
14090	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		1533	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30	
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.13	
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		0	
LIQUID	Detector Number	15	Am 243 cpm		54.08	
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm		0	
96010627			AEA Count Time (min)		480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	<	6.6492E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	6.6492E-03	
Sample Prep						
N/A						
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
S96T005458	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
WB25872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
Prepared By						
SEH						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.65E-06	DETECTION LEVELS			
Analyst	Relative Counting Error =	100.0%				
JMV						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					
12/04/96	Cm 243/244 $\mu\text{Ci/mL}$	< 6.65E-06	Am 241			
Analysis Date	Relative Counting Error =	100.0%	6.65E-06			
12/03/96	Am 243 Tracer Recovery =	75.5%	Cm 243/244			
Analysis Time						
02:20 PM						
Sample Point						
AY-102 GRAB						

Analyst:	JMV	Date:	12/04/96
Signature of Chemist:	JFR	Date:	6 Dec 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (B-0)**LIQUID / SOLID**

WORKSHEET AEA, D014

Am 241 and Cm 243/244: LA-953-103 (B-0)			LIQUID / SOLID		DUP
Type	Date Counted	DEC-03-96	Am 241 AEA Frac.	(C241)	0
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)	0.975
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
14090	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		1763
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		0
LIQUID	Detector Number	15	Am 243 cpm		54.07
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm		0
96010627			AEA Count Time (min)		480
ReRun			Am 241 $\mu\text{Ci/L}$ =	<	5.1685E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	5.1685E-03
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S96T005458	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
SEH					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 5.17E-06	DETECTION LEVELS In $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
JMV					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
12/04/96	Cm 243/244 $\mu\text{Ci/mL}$	< 5.17E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	5.17E-06		
12/03/96	Am 243 Tracer Recovery =	91.8%	Cm 243/244		
Analysis Time					
02:20 PM					
Sample Point					
AY-102 GRAB					

Analyst:	JMV	Date:	12/04/96
Signature of Chemist:	<i>John Redyca</i>	JFR	Date: 6 Dec 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (B-0)**LIQUID / SOLID**

Am 241 and Cm 243/244: LA-953-103 (B-0)			LIQUID / SOLID		SAMPLE
Type	Date Counted	DEC-03-96	Am 241 AEA Frac.	(C241)	0
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)	0.897
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
14090	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		1628
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		0
LIQUID	Detector Number	15	Am 243 cpm		50.8
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm		0
96010627			AEA Count Time (min)		480
Rerun			Am 241 $\mu\text{Ci/L}$ =	<	6.6141E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	6.6141E-03
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S96T005459	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
SEH					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.61E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
JMV					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
12/04/96	Cm 243/244 $\mu\text{Ci/mL}$	< 6.61E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	6.61E-06		
12/03/96	Am 243 Tracer Recovery =	78.0%	Cm 243/244		
Analysis Time					
02:20 PM					
Sample Point					
AY-102 GRAB					

Analyst:	JMV	Date:	12/04/96
Signature of Chemist:	JFR	Date:	6 Dec 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (B-0)

LIQUID / SOLID

DUP

Type	Date Counted	DEC-03-96	Am 241 AEA Frac. (C241)	0
DUP	Sample Volume In mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.889
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
14090	Tracer Volume In mL (SPKV)	0.200	Total AT Counts	1776
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background In cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	0
LIQUID	Detector Number	15	Am 243 cpm	55.81
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0
96010627			AEA Count Time (min)	480
Return			Am 241 $\mu\text{Ci/L}$ =	< 6.1713E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 6.1713E-03
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
S96T005459	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.			
SEH				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.17E-06	DETECTION LEVELS In $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	100.0%		
JMV				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
12/04/96	Cm 243/244 $\mu\text{Ci/mL}$	< 6.17E-06	Am 241	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
12/03/96	Am 243 Tracer Recovery =	84.3%		
Analysis Time				
02:20 PM				
Sample Point				
AY-102 GRAB				

Analyst:	JMV	Date:	12/04/96
Signature of Chemist:	JFR	Date:	6 Dec 96
SAMPLE.WB1 REV 1.2	953103ML		

DATA REDUCTION REPORT

SAMPLE
WL14090-STD-AM
File ID: 16a1676.CNF

Counted on: 12/ 3/96 @20:51
Detector:
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1410.2	1410.2	301.568	301.568	12.000	6.289	6.000	2.313
2	1247.6	1247.6	256.166	256.145	12.000	4.701	6.000	1.670
3	22.1	22.1	168.610	168.581	132.000	1.000	66.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Th228	0.498	5.400	5.454	-0.054	49.85	1.3	3815.5	0.172E-02
	Am241		5.479	5.454	0.025			2881.9	0.130E-02
2		0.421		5.245	0.02	42.09	1.4	2287.6	0.103E-02
3		0.018		4.842	0.00	1.77	6.8	96.0	0.432E-04
Totals:			0.937	<--valid peaks only-->			93.70		

DETECTOR CALIBRATION

Energy(MEV) = 4.067 + (0.0046)*Channel
Energy range (MeV): 4.067 TO 6.422
Efficiency = 0.0184 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	48012.0	100.000
Smoothed	48017.3	100.011
Composite fit	44982.1	93.689
Residuals	3029.9	6.311

Analyzed by: 

VR

Spectrum 16a1676.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 9954.1

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3
3
3
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1.....2
2.1.....
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.....1
1...

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1	0.	0.	4.	2.	6.	3.	4.	3.	4.	0.
11	1.	2.	1.	5.	3.	2.	5.	0.	1.	2.
21	2.	2.	9.	2.	1.	1.	2.	3.	3.	2.
31	3.	3.	4.	3.	4.	3.	4.	3.	6.	6.
41	2.	5.	3.	4.	2.	0.	2.	7.	3.	2.
51	2.	2.	2.	1.	6.	2.	1.	1.	2.	4.
61	2.	8.	2.	5.	3.	9.	6.	2.	3.	6.
71	3.	5.	8.	4.	3.	8.	5.	2.	6.	6.
81	1.	3.	9.	2.	2.	7.	7.	4.	5.	1.
91	7.	2.	11.	5.	6.	3.	9.	3.	9.	8.
101	1.	2.	9.	9.	2.	7.	6.	2.	7.	8.
111	10.	10.	6.	6.	10.	13.	4.	5.	12.	9.
121	8.	12.	6.	8.	10.	6.	7.	11.	8.	12.
131	10.	8.	11.	9.	7.	10.	10.	12.	12.	6.
141	15.	12.	8.	16.	13.	17.	14.	13.	15.	11.
151	16.	17.	9.	8.	16.	13.	11.	15.	12.	20.
161	17.	13.	18.	10.	16.	18.	19.	29.	27.	17.
171	19.	19.	15.	25.	19.	25.	21.	19.	18.	21.
181	22.	19.	21.	30.	22.	32.	17.	33.	30.	33.
191	33.	27.	32.	34.	38.	32.	30.	41.	38.	33.
201	31.	38.	53.	39.	44.	39.	40.	46.	33.	44.
211	52.	35.	59.	72.	71.	75.	69.	75.	76.	70.
221	64.	82.	79.	82.	68.	115.	99.	133.	126.	128.
231	126.	164.	149.	170.	181.	208.	223.	226.	245.	305.
241	320.	343.	398.	425.	490.	554.	626.	648.	740.	803.
251	916.	979.	1121.	1207.	1251.	1418.	1459.	1335.	876.	575.
261	298.	198.	195.	161.	162.	148.	146.	157.	147.	145.
271	144.	136.	130.	129.	130.	156.	136.	169.	189.	202.
281	213.	224.	237.	269.	307.	328.	374.	417.	453.	515.
291	580.	665.	771.	761.	910.	969.	1038.	1172.	1288.	1420.
301	1597.	1578.	1519.	1284.	864.	584.	395.	343.	292.	227.
311	184.	144.	106.	81.	60.	33.	16.	3.	1.	0.
321	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
331	0.	1.	0.	0.	1.	0.	0.	0.	1.	0.
341	0.	1.	1.	0.	0.	2.	1.	2.	1.	1.
351	3.	3.	1.	2.	0.	2.	0.	0.	1.	0.
361	0.	0.	2.	1.	0.	1.	0.	0.	0.	1.
371	1.	1.	2.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
431	1.	0.	1.	0.	0.	0.	0.	0.	1.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
471	1.	0.	0.	0.	0.	0.	1.	0.	3.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	1.	0.	0.	0.	0.	1.	0.	1.
511	0.	0.								

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL14090-BLK-AM
 File ID: 5a5981.CNF

Counted on: 12/ 3/96 @20:52
 Detector: AEA5
 Geometry number: 1
 Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1402.2	1402.2	256.049	256.049	16.000	9.385	8.000	3.204
2	31.0	31.0	190.106	189.700	66.000	329.222	33.000	100.935
3?	0.0	0.1	162.505	162.505	0.000	0.100	0.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

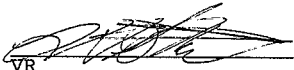
Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea	
1	Am243	0.912	5.270	5.261	0.0090	0.04	56.91	1.2	148.1	0.667E-04	
2	Np237	0.090	4.769	4.956	-.1871	1.51	5.59	12.6	16.6	0.746E-05	
	Pu242		4.891	4.956	-.065				14.4	0.649E-05	
3		????		4.831			0.00	*****			
Totals:		1.001	<--valid peaks only-->				62.50				

DETECTOR CALIBRATION

Energy (MEV) = 4.083 + (0.0046)*Channel
 Energy range (MeV): 4.083 TO 6.439
 Efficiency = 0.3881 CPM/CPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29972.0	100.000
Smoothed	29972.0	100.000
Composite fit	30004.4	100.108
Residuals	-32.4	-0.108

Analyzed by: 

VR

[illegible]

Raw Data Dump for AEA Spectrum: 5a5981.CNF										
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	2.	0.	0.	0.	2.	1.	3.	0.	1.
21	0.	3.	1.	5.	2.	1.	2.	0.	3.	2.
31	1.	1.	1.	0.	5.	1.	3.	0.	0.	1.
41	1.	3.	1.	3.	3.	0.	2.	3.	3.	2.
51	2.	2.	7.	3.	3.	2.	1.	1.	5.	3.
61	1.	2.	2.	3.	1.	1.	4.	0.	0.	1.
71	3.	2.	2.	1.	0.	2.	2.	2.	4.	4.
81	4.	1.	2.	4.	5.	2.	2.	3.	2.	2.
91	4.	5.	3.	2.	5.	2.	1.	4.	1.	3.
101	4.	4.	1.	2.	11.	6.	5.	5.	4.	2.
111	3.	5.	5.	6.	4.	7.	8.	4.	5.	5.
121	2.	6.	5.	5.	7.	13.	10.	3.	9.	6.
131	6.	1.	6.	4.	8.	7.	3.	6.	0.	9.
141	7.	3.	8.	8.	8.	7.	8.	3.	11.	13.
151	19.	6.	10.	6.	8.	10.	7.	20.	9.	9.
161	9.	9.	19.	9.	7.	12.	8.	9.	10.	13.
171	18.	10.	19.	12.	8.	14.	13.	11.	11.	16.
181	20.	19.	21.	21.	19.	20.	18.	33.	40.	22.
191	29.	31.	28.	20.	23.	31.	34.	28.	48.	36.
201	55.	42.	45.	46.	44.	39.	46.	58.	65.	52.
211	43.	63.	66.	56.	68.	59.	78.	74.	93.	81.
221	100.	102.	135.	118.	146.	139.	152.	164.	135.	159.
231	193.	193.	192.	235.	261.	234.	290.	288.	324.	350.
241	388.	425.	528.	550.	626.	658.	689.	780.	920.	978.
251	1145.	1190.	1314.	1455.	1445.	1556.	1479.	1380.	1177.	1024.
261	818.	593.	465.	345.	299.	194.	191.	161.	127.	101.
271	97.	79.	71.	38.	30.	28.	18.	9.	9.	4.
281	1.	0.	2.	3.	2.	3.	2.	4.	2.	0.
291	1.	2.	2.	3.	2.	3.	3.	7.	4.	4.
301	5.	7.	4.	3.	3.	3.	1.	2.	3.	2.
311	0.	2.	3.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
331	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
341	1.	1.	0.	3.	0.	1.	3.	2.	1.	2.
351	1.	2.	4.	2.	0.	0.	0.	1.	1.	0.
361	2.	1.	0.	0.	2.	1.	0.	2.	1.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	2.	0.	1.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
471	0.	0.	0.	0.	4.	0.	3.	0.	0.	1.
481	1.	0.	1.	1.	1.	2.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

HNF-SD-WM-DP-222, REV. 0

SAMPLE
 S96T005458-SAM-A
 File ID: 6a6802.CNF

Counted on: 12/ 3/96 @20:53
 Detector: AEA6
 Geometry number: 1
 Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1207.6	1207.6	254.063	254.063	18.000	10.798	9.000	3.241

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid Obs. Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Am243	0.922	5.270	5.265	0.0050.05	54.08	1.2	625.0	0.282E-03
Totals:		0.922	<---valid peaks only-->			54.08			

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0047)*Channel
 Energy range (MeV): 4.071 TO 6.477
 Efficiency = 0.0874 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	28155.0	100.000
Smoothed	28155.0	100.000
Composite fit	25958.4	92.198
Residuals	2196.6	7.802

Analyzed by: 

VR

1 Legend:

Raw = ...

Modeled Peaks = 1,2,..., etc

Display Max.:

8877.5

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Raw Data	Dump	for AEA	Spectrum:	6a6802.CNF	HNF-SD-WM-DP-222, REV. 0			
1	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	2.	2.	1.	0.	0.	3.	1.
21	2.	0.	0.	0.	0.	0.	5.	2.
31	1.	4.	0.	4.	1.	2.	4.	0.
41	1.	2.	2.	1.	1.	1.	2.	0.
51	2.	4.	3.	4.	2.	1.	1.	2.
61	1.	4.	1.	0.	0.	2.	0.	4.
71	4.	2.	2.	3.	3.	2.	4.	4.
81	7.	2.	2.	4.	1.	5.	1.	2.
91	0.	5.	2.	0.	2.	3.	6.	0.
101	2.	6.	5.	2.	3.	8.	1.	4.
111	2.	1.	3.	4.	2.	1.	4.	2.
121	7.	3.	4.	5.	3.	7.	5.	4.
131	4.	3.	8.	4.	2.	8.	6.	3.
141	5.	7.	8.	3.	7.	5.	4.	2.
151	6.	7.	9.	6.	3.	1.	3.	9.
161	6.	14.	8.	10.	7.	11.	7.	8.
171	18.	19.	11.	11.	10.	9.	7.	11.
181	26.	18.	16.	18.	15.	16.	14.	19.
191	29.	36.	19.	23.	11.	20.	19.	23.
201	35.	33.	29.	21.	31.	21.	20.	34.
211	61.	55.	24.	29.	34.	36.	26.	49.
221	114.	86.	40.	57.	56.	48.	64.	58.
231	205.	126.	78.	86.	90.	97.	93.	113.
241	518.	243.	145.	161.	146.	183.	175.	199.
251	1197.	583.	311.	306.	320.	320.	357.	429.
261	477.	1274.	621.	684.	744.	824.	903.	988.
271	57.	357.	1319.	1222.	1222.	1087.	912.	1024.
281	2.	50.	202.	183.	148.	118.	113.	790.
291	3.	1.	28.	18.	18.	6.	3.	87.
301	3.	4.	2.	4.	5.	2.	0.	2.
311	2.	3.	3.	5.	3.	3.	7.	2.
321	2.	2.	6.	6.	2.	1.	4.	4.
331	0.	1.	0.	1.	0.	1.	0.	3.
341	1.	0.	0.	0.	0.	0.	0.	0.
351	0.	1.	1.	0.	0.	1.	0.	0.
361	2.	0.	1.	2.	0.	0.	0.	1.
371	3.	2.	2.	0.	5.	2.	3.	2.
381	0.	1.	0.	2.	1.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.
501	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.
521	0.	0.	0.	0.	0.	0.	0.	0.
531	0.	0.	0.	0.	0.	0.	0.	0.
541	0.	0.	0.	0.	0.	0.	0.	0.
551	0.	0.	0.	0.	0.	0.	0.	0.
561	0.	0.	0.	0.	0.	0.	0.	0.
571	0.	0.	0.	0.	0.	0.	0.	0.
581	0.	0.	0.	0.	0.	0.	0.	0.
591	0.	0.	0.	0.	0.	0.	0.	0.
601	0.	0.	0.	0.	0.	0.	0.	0.
611	0.	0.	0.	0.	0.	0.	0.	0.
621	0.	0.	0.	0.	0.	0.	0.	0.
631	0.	0.	0.	0.	0.	0.	0.	0.
641	0.	0.	0.	0.	0.	0.	0.	0.
651	0.	0.	0.	0.	0.	0.	0.	0.
661	0.	0.	0.	0.	0.	0.	0.	0.
671	0.	0.	0.	0.	0.	0.	0.	0.
681	0.	0.	0.	0.	0.	0.	0.	0.
691	0.	0.	0.	0.	0.	0.	0.	0.
701	0.	0.	0.	0.	0.	0.	0.	0.
711	0.	0.	0.	0.	0.	0.	0.	0.
721	0.	0.	0.	0.	0.	0.	0.	0.
731	0.	0.	0.	0.	0.	0.	0.	0.
741	0.	0.	0.	0.	0.	0.	0.	0.
751	0.	0.	0.	0.	0.	0.	0.	0.
761	0.	0.	0.	0.	0.	0.	0.	0.
771	0.	0.	0.	0.	0.	0.	0.	0.
781	0.	0.	0.	0.	0.	0.	0.	0.
791	0.	0.	0.	0.	0.	0.	0.	0.
801	0.	0.	0.	0.	0.	0.	0.	0.
811	0.	0.	0.	0.	0.	0.	0.	0.
821	0.	0.	0.	0.	0.	0.	0.	0.
831	0.	0.	0.	0.	0.	0.	0.	0.
841	0.	0.	0.	0.	0.	0.	0.	0.
851	0.	0.	0.	0.	0.	0.	0.	0.
861	0.	0.	0.	0.	0.	0.	0.	0.
871	0.	0.	0.	0.	0.	0.	0.	0.
881	0.	0.	0.	0.	0.	0.	0.	0.
891	0.	0.	0.	0.	0.	0.	0.	0.
901	0.	0.	0.	0.	0.	0.	0.	0.
911	0.	0.	0.	0.	0.	0.	0.	0.
921	0.	0.	0.	0.	0.	0.	0.	0.
931	0.	0.	0.	0.	0.	0.	0.	0.
941	0.	0.	0.	0.	0.	0.	0.	0.
951	0.	0.	0.	0.	0.	0.	0.	0.
961	0.	0.	0.	0.	0.	0.	0.	0.
971	0.	0.	0.	0.	0.	0.	0.	0.
981	0.	0.	0.	0.	0.	0.	0.	0.
991	0.	0.	0.	0.	0.	0.	0.	0.
1001	0.	0.	0.	0.	0.	0.	0.	0.

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T005458-DUP-A
 File ID: 7a7569.CNF

Counted on: 12/ 3/96 @20:54
 Detector: AEA7
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	631.6	631.6	254.921	254.921	40.000	65.466	20.000	16.757
2	8.1	8.1	173.633	173.000	46.000	85.667	23.000	7.594

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.					
1	Pu239	0.975	5.147	5.237	-0.0900	0.30	54.07	1.2	140.3	0.632E-04
	Am243		5.270	5.237	0.033				141.7	0.638E-04
2	Np237	0.020	4.769	4.861	-0.0920	0.39	1.12	19.5	3.3	0.150E-05
	Pu242		4.891	4.861	0.030				2.9	0.131E-05
Totals:			0.995	<--valid peaks only-->			55.19			

DETECTOR CALIBRATION

Energy (MeV) = 4.065 + (0.0046)*Channel
 Energy range (MeV): 4.065 TO 6.420
 Efficiency = 0.3855 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	26616.0	100.000
Smoothed	26616.0	100.000
Composite fit	26495.9	99.549
Residuals	120.1	0.451

Analyzed by: 

VR

[illegible]

Raw Data Dump for AEA Spectrum: 7a7569.CNF

HNF-SD-WM-DP-222, REV. 0

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	1.	2.	0.	0.	1.	1.	1.	2.	2.
21	1.	1.	2.	0.	1.	0.	3.	3.	0.	2.
31	0.	0.	2.	1.	1.	0.	1.	0.	1.	1.
41	0.	0.	2.	0.	1.	1.	0.	2.	2.	0.
51	1.	1.	4.	1.	1.	5.	2.	2.	3.	1.
61	2.	1.	5.	2.	0.	1.	2.	2.	1.	2.
71	3.	2.	3.	1.	2.	2.	0.	0.	2.	2.
81	2.	0.	0.	0.	3.	0.	1.	3.	0.	2.
91	1.	1.	3.	1.	1.	1.	0.	1.	2.	2.
101	1.	6.	1.	0.	2.	3.	0.	2.	3.	4.
111	4.	5.	0.	4.	2.	2.	2.	4.	3.	1.
121	3.	3.	3.	3.	5.	4.	3.	3.	3.	7.
131	5.	3.	8.	4.	2.	2.	9.	3.	3.	9.
141	5.	0.	2.	3.	3.	3.	1.	3.	8.	5.
151	7.	5.	3.	6.	4.	7.	8.	4.	2.	6.
161	11.	10.	5.	12.	8.	6.	13.	10.	4.	8.
171	6.	19.	8.	11.	13.	10.	9.	9.	12.	12.
181	12.	10.	19.	13.	20.	15.	18.	11.	23.	13.
191	18.	17.	30.	15.	21.	15.	29.	20.	19.	34.
201	41.	25.	34.	37.	29.	34.	54.	44.	42.	65.
211	41.	72.	45.	64.	72.	71.	58.	82.	112.	77.
221	113.	116.	104.	138.	135.	165.	167.	181.	207.	224.
231	202.	264.	272.	291.	283.	266.	332.	334.	390.	395.
241	435.	468.	474.	498.	541.	546.	542.	595.	623.	642.
251	591.	627.	649.	635.	657.	611.	647.	605.	605.	580.
261	566.	555.	567.	526.	538.	519.	474.	408.	374.	371.
271	382.	326.	278.	294.	268.	234.	165.	174.	168.	129.
281	117.	120.	103.	91.	82.	77.	47.	47.	43.	49.
291	36.	29.	20.	30.	27.	26.	13.	8.	8.	14.
301	12.	7.	9.	4.	7.	7.	9.	6.	4.	6.
311	2.	5.	2.	1.	3.	2.	2.	1.	0.	1.
321	1.	0.	1.	2.	0.	1.	1.	3.	1.	1.
331	1.	0.	0.	0.	1.	0.	1.	0.	0.	0.
341	0.	1.	0.	0.	0.	0.	0.	0.	1.	2.
351	0.	1.	0.	2.	1.	1.	1.	1.	2.	1.
361	2.	1.	1.	0.	1.	1.	1.	0.	0.	1.
371	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
481	0.	0.	1.	1.	1.	0.	1.	1.	2.	0.
491	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
511	3.	0.								

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005459-SAM-A
File ID: 8a8770.CNF

Counted on: 12/ 3/96 @20:55
Detector: AEA8
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	790.8	790.8	255.368	255.368	20.000	14.368	10.000	2.535
2	23.7	23.7	157.535	157.240	136.000	1.000	68.000	0.100
3?	5.4	5.4	128.068	127.515	6.000	0.587	3.000	0.177

PEAK RESULTS

Peak Error Limit: 30%

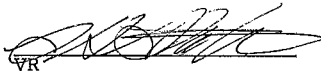
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
		Exp.	Obs.	Diff.	FWHM	c/m			
1	Pu239	0.897	5.147	5.250	-.1030.07	50.80	1.3	113.5	0.511E-04
	Am243		5.270	5.250	0.020			114.6	0.516E-04
2	Np237	0.033	4.769	4.799	-.0300.00	1.89	7.2	4.8	0.218E-05
3	????			4.662		0.16	60.4		
Totals:		0.931	<--valid peaks only-->			52.68			

DETECTOR CALIBRATION

Energy(MEV) = 4.076 + (0.0046)*Channel
Energy range (MeV): 4.076 TO 6.431
Efficiency = 0.4477 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	27172.0	100.000
Smoothed	27172.0	100.000
Composite fit	25365.0	93.350
Residuals	1807.0	6.650

Analyzed by: 

VR

Display Max.: 5815.8

[illegible]

Raw Data Dump for AEA Spectrum: 8a8770.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	2.	3.	1.	3.	3.	2.	5.	3.	0.	2.
21	5.	4.	2.	2.	6.	7.	4.	4.	2.	4.
31	3.	3.	1.	5.	1.	5.	5.	6.	4.	8.
41	5.	6.	3.	3.	4.	6.	4.	5.	7.	4.
51	5.	4.	3.	3.	7.	4.	4.	5.	2.	7.
61	7.	2.	4.	5.	7.	5.	3.	9.	8.	6.
71	6.	5.	5.	5.	4.	11.	4.	5.	10.	7.
81	10.	7.	11.	10.	5.	9.	9.	8.	4.	8.
91	8.	4.	5.	6.	9.	12.	11.	3.	18.	9.
101	9.	9.	8.	10.	12.	10.	8.	9.	16.	11.
111	12.	10.	16.	13.	8.	10.	16.	13.	6.	15.
121	16.	13.	14.	12.	18.	11.	14.	24.	19.	14.
131	9.	11.	20.	12.	12.	18.	20.	20.	16.	25.
141	30.	13.	16.	18.	24.	26.	19.	20.	23.	16.
151	25.	17.	34.	27.	28.	27.	35.	33.	34.	23.
161	26.	17.	25.	20.	33.	37.	41.	32.	26.	30.
171	42.	42.	36.	36.	44.	36.	40.	36.	59.	49.
181	48.	43.	44.	41.	45.	50.	36.	57.	57.	62.
191	66.	68.	82.	72.	57.	82.	67.	90.	82.	87.
201	78.	90.	102.	98.	92.	103.	85.	101.	105.	129.
211	132.	129.	144.	125.	125.	138.	160.	171.	177.	175.
221	180.	200.	203.	183.	199.	219.	217.	231.	233.	233.
231	264.	264.	283.	269.	325.	337.	331.	353.	386.	394.
241	424.	429.	504.	523.	513.	556.	579.	573.	683.	725.
251	712.	733.	808.	810.	840.	814.	816.	732.	713.	578.
261	532.	507.	386.	287.	249.	187.	128.	85.	84.	71.
271	60.	44.	38.	31.	25.	15.	15.	8.	6.	3.
281	5.	2.	4.	2.	3.	1.	2.	1.	2.	3.
291	1.	5.	5.	2.	1.	2.	2.	3.	4.	1.
301	1.	2.	3.	5.	1.	2.	1.	1.	1.	0.
311	1.	0.	3.	1.	1.	0.	1.	0.	0.	0.
321	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
331	1.	0.	0.	0.	0.	1.	1.	1.	0.	0.
341	1.	1.	1.	1.	2.	2.	0.	0.	1.	1.
351	2.	3.	0.	1.	2.	3.	1.	1.	2.	1.
361	0.	1.	0.	1.	0.	1.	0.	1.	2.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
431	0.	0.	1.	0.	0.	0.	0.	1.	0.	2.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
471	0.	1.	0.	1.	2.	0.	0.	1.	0.	0.
481	1.	1.	0.	1.	0.	2.	0.	0.	1.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DATA REDUCTION REPORT

SAMPLE
S96T005459-DUP-A
File ID: 9a9586.CNF

Counted on: 12/ 3/96 @20:56
Detector: AEA9
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1164.6	1164.6	258.422	258.422	16.000	7.799	8.000	1.830
2	32.2	32.2	189.160	187.170	74.000	361.336	37.000	113.899
3?	0.0	0.1	174.229	174.229	0.000	0.100	0.000	0.100
4?	4.5	4.5	124.264	123.144	22.000	1.254	11.000	38.610

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err	d/m	Activity
			Exp.	Obs.	Diff.	c/m	@95		uCi/ea
1	Am243	0.889	5.270	5.255	0.0150.04	55.81	1.2	152.0	0.685E-04
2	Np237	0.097	4.769	4.928	-.1591.66	6.08	11.6	18.8	0.848E-05
	Pu242		4.891	4.928	-.037			16.4	0.738E-05
3		????		4.868		0.00	*****		
4		????		4.633		0.05	116.		
-----			-----			-----			
Totals:		0.986	<--valid peaks only-->			61.89			

-- DETECTOR CALIBRATION
Energy (MeV) = 4.067 + (0.0046)*Channel
Energy range (MeV): 4.067 TO 6.422
Efficiency = 0.3709 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	30135.0	100.000
Smoothed	30135.0	100.000
Composite fit	29734.0	98.669
Residuals	401.0	1.331

Analyzed by: 

VR

4

307

1	0.	0.	1.	1.	2.	4.	3.	2.	1.	1.
11	0.	1.	1.	2.	1.	2.	5.	1.	6.	2.
21	1.	3.	3.	1.	3.	3.	2.	4.	5.	1.
31	1.	5.	3.	3.	4.	3.	2.	5.	6.	2.
41	1.	2.	1.	2.	3.	4.	2.	5.	3.	2.
51	2.	4.	3.	2.	5.	4.	4.	7.	14.	5.
61	1.	2.	4.	1.	3.	5.	8.	3.	3.	7.
71	4.	6.	2.	5.	5.	5.	4.	3.	4.	3.
81	3.	3.	3.	4.	8.	3.	5.	4.	9.	1.
91	5.	7.	10.	5.	3.	6.	4.	7.	1.	6.
101	6.	2.	8.	7.	3.	13.	4.	9.	12.	10.
111	11.	7.	7.	6.	9.	12.	8.	8.	10.	9.
121	11.	8.	9.	12.	14.	8.	8.	9.	11.	7.
131	11.	6.	10.	11.	14.	11.	13.	14.	11.	13.
141	13.	12.	11.	14.	9.	14.	14.	16.	17.	17.
151	12.	14.	18.	15.	17.	16.	18.	15.	13.	20.
161	20.	16.	28.	13.	18.	18.	22.	23.	28.	21.
171	37.	26.	31.	33.	28.	33.	21.	30.	21.	32.
181	27.	27.	36.	45.	47.	53.	39.	41.	54.	44.
191	43.	43.	31.	42.	42.	63.	54.	54.	50.	60.
201	76.	69.	75.	69.	71.	84.	79.	84.	72.	88.
211	75.	84.	105.	105.	112.	115.	108.	121.	108.	128.
221	155.	148.	171.	159.	157.	164.	181.	195.	232.	206.
231	243.	219.	260.	271.	291.	332.	302.	316.	342.	345.
241	399.	428.	476.	482.	511.	584.	621.	628.	702.	821.
251	850.	928.	941.	980.	1066.	1146.	1184.	1266.	1252.	1189.
261	1092.	924.	652.	441.	297.	214.	163.	147.	108.	114.
271	88.	98.	89.	54.	57.	40.	29.	14.	14.	3.
281	1.	0.	3.	3.	1.	1.	1.	1.	0.	3.
291	1.	1.	2.	4.	0.	3.	3.	0.	3.	2.
301	5.	4.	4.	3.	5.	3.	0.	1.	1.	2.
311	0.	1.	1.	0.	0.	0.	1.	2.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	0.	0.	1.	0.	0.	0.	1.	1.	0.
341	0.	1.	0.	0.	0.	0.	1.	1.	2.	0.
351	2.	6.	2.	3.	1.	1.	1.	0.	1.	0.
361	0.	0.	0.	2.	0.	1.	0.	0.	1.	2.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
431	0.	1.	0.	2.	1.	0.	0.	0.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	0.	1.	0.	1.	0.	0.
471	2.	0.	1.	1.	1.	2.	1.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed RadChem Report for Worklist#: 14091

Analyst: knt

Instrument: AB14

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-102 Grab.Determine sample size using ludlum.Std:1.0.new

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@PU23901 PU23901 LIQUID		1.49E-04	1.23E-4	86.577	% Recovery
1 STD	0		@PU23901 PU23901E LIQUID		1.00	1.61E+00	1.610	% Ct Error
1 STD	0		@PU23901 PU23901T LIQUID		100	1.02E+02	102.000	% Recovery
2 BLNK	0		@PU23901 PU23901 LIQUID		1	<3.05E-6		uCi/mL
2 BLNK	0		@PU23901 PU23901T LIQUID		100	1.16E+02	116.000	% Recovery
2 BLNK	0		@PU23901 PU23901E LIQUID		1.00	1.00E+02	100.000	uCi/mL
3 SAMPLE	S96T005367	0	@PU23901 PU23901 LIQUID		N/A	5.97E-06	344.0e-008	uCi/mL
3 SAMPLE	S96T005367	0	@PU23901 PU23901T LIQUID		N/A	1.06E+02	0.0e+000	% Recovery
3 SAMPLE	S96T005367	0	@PU23901 PU23901E LIQUID		N/A	4.97E+00	0.0e+000	% Ct. Error
4 DUP	S96T005367	0	@PU23901 PU23901 LIQUID		5.97E-6	5.72E-6	4.277	RPD
4 DUP	S96T005367	0	@PU23901 PU23901T LIQUID		100	1.07E+02	107.000	% Recovery
4 DUP	S96T005367	0	@PU23901 PU23901E LIQUID		1.00	4.53E+00	4.530	% Ct Error
5 SAMPLE	S96T005457	0	@PU23901 PU23901 LIQUID		N/A	3.33E-06	333.0e-008	uCi/mL
5 SAMPLE	S96T005457	0	@PU23901 PU23901T LIQUID		N/A	1.12E+02	0.0e+000	% Recovery
5 SAMPLE	S96T005457	0	@PU23901 PU23901E LIQUID		N/A	7.03E+00	0.0e+000	% Ct. Error
6 DUP	S96T005457	0	@PU23901 PU23901 LIQUID		<3.33E-6	4.20E-6		RPD
6 DUP	S96T005457	0	@PU23901 PU23901T LIQUID		100	1.09E+02	109.000	% Recovery
6 DUP	S96T005457	0	@PU23901 PU23901E LIQUID		1.00	5.30E+00	5.300	% Ct Error

Final page for worklist# 14091

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Relyen 4 Dec 96
Reviewer Signature _____ Date _____
Validated

LABCORE Data Entry Template for Worklist# 14091

Analyst: KNT Instrument: PU01 AB 14 Book# C2B53

Method: LA-943-128 Rev/Mod B-O

Worklist Comment: AY-102 Grab.Determine sample size using ludlum.Std:1.0.new

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@PU23901	LIQUID		
2 BLNK			@PU23901	LIQUID		
3 SAMPLE	S96T005367 0		@PU23901	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T					
4 DUP	S96T005367 0		@PU23901	LIQUID		
5 SAMPLE	S96T005457 0		@PU23901	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T					
6 DUP	S96T005457 0		@PU23901	LIQUID		

Final page for worklist # 14091

Kim Thomas 12-2-96
Analyst Signature Date

Sue Hogan 12/13/96
Analyst Signature Date
C.J. Owen 12/13/96

Data Entry Comments:

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID

Pu 238 and 239/240 : LA-943-128 (B-0)				LIQUID		STD	
Type	DATE COUNTED		DEC-02-96		Pu 236 AEA FRAC (C236)	0.421	
STD	SAMPLE VOLUME in mL		SS	1.000	Pu 238 AEA FRAC (C238)	0.000	
Work List	SAMPLE DILUTION FACTOR		DF	1.000	Pu 239 AEA FRAC (C239)	0.540	
14091	TRACER VOLUME in mL		SPKV	0.100	TOTAL AT COUNTS	4741	
Test Code	DIGEST DILUTION FACTOR		DDF	1.000	AT COUNT TIME (MIN)	30	
@PU23901	TRACER BOOK NO		126B43		BACKGROUND in cpm (Bkg)	0.030	
Matrix	DETECTOR NUMBER		14		Pu 236 cpm	54.840	
LIQUID	EFFICIENCY FACTOR		EFF	0.291	Pu 238 cpm	0.000	
Batch Number	TRACER PREPARATION DATE		07/12/96		Pu 239 cpm	70.310	
96010628	TRACER PREPARATION VALUE (dpm/mL)		2464.000		AEA COUNT TIME	480	
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2240.200		Pu 239/240 µCi/L	1.2943E-01	
0	PU-238 TRACER VALUE (dpm/mL)		0.000				
Sample Prep	STANDARD BOOK NO		62B56				
N/A	STANDARD VALUE in µCi/mL		1.485E-04				
Sample #							
WL14091							
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date						
WB27807	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]						
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Corr'd Value * SPKV						
SEH	Pu 239/240 µCi/L = (C239) (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (2220000 dpm/µCi)]						
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)						
JFR	Pu 238 µCi/L = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/µCi) (D g/L) (SS)]						
Analyst	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100						
KNT							
Date Complete							
12/03/96	Pu 239/240 µCi/mL		1.29E-04		DETECTION LEVELS in µCi/mL Pu 239/240 7.19E-06		
Analysis Date	Relative Counting Error		=	1.6%			
12/02/96							
Analysis Time							
05:20 AM							
Sample Point							
AY-102 GRAB	Pu 236 Tracer Recovery		=		102.0%		

Analyst:	KNT	Date:	03-Dec-96
Signature of Chemist:	JFR	Date:	4 Dec 96

STANDARD.WB1 REV 1.0

943128ML

HNF-SD-WM-DP-222, REV. 0

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

Type	DATE COUNTED	DEC-02-96	Pu 236 AEA FRAC (C236)	BLNK
BLNK	SAMPLE VOLUME in mL	SS	1.000	0.991
Work List	SAMPLE DILUTION FACTOR	DF	1.000	0.000
14091	TRACER VOLUME in mL	SPKV	0.100	0.000
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	2283
@PU23901	TRACER BOOK NO	126B43	BACKGROUNd in cp (Bkg)	30
Matrix	DETECTOR NUMBER	14	Pu 236 cpm	0.030
LIQUID	EFFICIENCY FACTOR	EFF	0.2910	63.630
Batch Number	TRACER PREPARATION DATE	07/12/96	Pu 238 cpm	0.000
96010628	TRACER PREPARATION VALUE (dpm/mL)	2464.00	AEA COUNT TIME	480
Return	PU-236 DECAY CORR'D VALUE (dpm/mL)	2240.20	Pu 239/240 µCi/L =	< 3.055E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.00		

Sample Prep

N/A

Sample #

WL 14091

Instrument Code

WB27607

Prepared By

SEH

Chemist

JFR

Analyst

KNT

Date Complete

12/03/96

Analysis Date

12/02/96

Analysis Time

06:20 AM

Sample Point

AY-102 GRAB

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(ln2 * Decay Time/1040.95)}]

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 µCi/L = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000mL/L) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

Pu 238 µCi/L = [(Pu 238 dpm) * (DF) * (DDF) * (1000mL/L)] / [(Pu-238 Tracer Recovery / 100) * (2220000 dpm/µCi) * (D g/L) * (SS)]

Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

12/03/96	Pu 239/240 µCi/mL	< 3.05E-06	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	= 100.0%	
12/02/96	NOTE: Pu 238 Result is a LESS THAN Value.		Pu 239/240
Analysis Time	Pu 238 µCi/mL	< 3.05E-06	3.05E-06
06:20 AM	Relative Counting Error	= 100.0%	Pu 238
Sample Point	Pu 236 Tracer Recovery	= 115.6%	3.05E-06

Analyst:	KNT	Date:	03-Dec-96
Signature of Chemist:	JFR	Date:	4 Dec 96

BLANK.WB1 REV 1.0

943128ML

HNF-SD-WM-DP-222, REV. 0

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

Pu 238 and 239/240 : LA-943-128 (B-0)				LIQUID / SOLID		SAMPLE
Type	DATE COUNTED	DEC-02-96	PU 236 AEA FRAC	(C236)		0.879
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.044
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.052
14091	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		2363
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	128B43		BACKGROUND in cpm	(Bkg)	0.030
Matrix	DETECTOR NUMBER	14		PU 236 cpm		57.390
LIQUID	EFFICIENCY FACTOR	EFF	0.291	PU 238 cpm		2.870
Batch Number	TRACER PREPARATION DATE	07/12/96		PU 239 cpm		3.430
96010628	TRACER PREPARATION VALUE (dpm/mL)	2464.000		AEA COUNT TIME		480
Re-run	PU-236 DECAY CORR'D VALUE (dpm/mL)	2240.200		Pu 239/240 µCi/L		5.9698E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000				
Sample Prep						
N/A						
Sample #						
S96T005367	Decay Time = Date Counted - Tracer Preparation Date					
Instrument Code	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]					
WB27807	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)					
Prepared By	Pu 239/240 µCi/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)/(2220000 dpm/µCi)]					
SEH	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)					
Chemist	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/µCi)(D g/L)(SS)]					
JFR	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100					
Analyst						
KNT						
Date Complete						
12/03/96	Pu 239/240 µCi/mL	5.97E-06	DETECTION LEVELS in µCi/mL			
Analysts Date	Relative Counting Error =	5.0%				
12/02/96						
Analysis Time						
05:20 AM	Pu 238 µCi/mL	5.05E-06	Pu 239/240			
Sample Point	Relative Counting Error =	5.4%	3.44E-06			
AY-102 GRAB	Pu 238 Tracer Recovery =	106.2%	Pu 238			
			3.44E-06			

Analyst:	KNT	Date:	03-Dec-96
Signature of Chemist:	JFR	Date:	7 Dec 96
SAMPLE.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

		DUP	
Type	DATE COUNTED	DEC-02-96	PU 236 AEA FRAC (C236)
DUP	SAMPLE VOLUME in mL	SS	1.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000
14091	TRACER VOLUME in mL	SPKV	0.100
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)
Matrix	DETECTOR NUMBER	14	PU 236 cpm
LIQUID	EFFICIENCY FACTOR	EFF	0.291
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 238 cpm
96010628	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2240.200	Pu 239/240 $\mu\text{Ci/L}$ =
0	PU-238 TRACER VALUE (dpm/mL)	0.000	5.7229E-03
Sample Prep			
N/A			
Sample #	Decay Time = Date Counted - Tracer Preparation Date		
S96T005367	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value $\times [e^{(-\ln 2 \times \text{Decay Time}/1040.95)}]$		
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) $\times \text{C236} \times 100 / (\text{Pu-236 Decay Corr'd Value} \times \text{SPKV} \times \text{EFF})$		
WB27807	Pu 239/240 $\mu\text{Ci/L}$ = (C239)(Pu 236 Decay Corr'd Value)(SPKV)/(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μCi)]		
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg $\times 1/\text{EFF} \times \text{C238}$] - (Pu-238 Tracer Value $\times \text{SPKV} \times \text{Pu 236 Tracer Recovery} / 100)$		
SEH	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μCi)(D g/L)(SS)]		
Chemist	Relative Counting Error = Square Root of $\{[1/(\text{Pu 236 cpm} \times \text{min})] + [1/(\text{Pu 238 or 239/240 cpm} \times \text{min})]\} \times 1.96 \times 100$		
JFR			
Analyst			
KNT			
Date Complete			
12/03/96	Pu 239/240 $\mu\text{Ci/mL}$	5.72E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$
Analysts Date	Relative Counting Error =	4.5%	
12/02/96			Pu 239/240
Analysis Time			3.50E-06
05:20 AM	Pu 238 $\mu\text{Ci/mL}$	8.76E-06	Pu 238
Sample Point	Relative Counting Error =	3.7%	3.50E-06
AY-102 GRAB	Pu 236 Tracer Recovery =	106.7%	

Analyst:	KNT	Date:	03-Dec-96
Signature of Chemist:	JFR	Date:	12 Dec 96

SAMPLE.WR1 REV 1.0

943128ML

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

				SAMPLE	
Type	DATE COUNTED	DEC-02-96	Pu 236 AEA FRAC (C236)		0.910
SAMPLE	SAMPLE VOLUME in mL	SS	Pu 238 AEA FRAC (C238)		0.079
Work List	SAMPLE DILUTION FACTOR	DF	Pu 239 AEA FRAC (C239)		0.021
14091	TRACER VOLUME in mL	SPKV	TOTAL AT COUNTS		2416
Test Code	DIGEST DILUTION FACTOR	DDF	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)		0.030
Matrix	DETECTOR NUMBER	14	Pu 236 cpm		70.310
LIQUID	EFFICIENCY FACTOR	EFF	Pu 238 cpm		6.080
Batch Number	TRACER PREPARATION DATE	07/12/96	Pu 239 cpm		1.660
96010628	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2240.200	Pu 239/240 $\mu\text{Ci/L}$ =	<	3.3267E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S96T005457	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value $\times$ $\{e \text{ to the power of } [(-\ln 2 \times \text{Decay Time}) / (1040.95)]\}$				
Instrument Code	Pu 236 Tracer Recovery = $(\text{Total AT Counts} / \text{TC} - \text{Bkg}) \times \text{C236} \times 100 / (\text{Pu-236 Decay Corr'd Value} \times \text{SPKV} \times \text{EFF})$				
WB27807	Pu 239/240 $\mu\text{Ci/L}$ = $(\text{C239}) / (\text{Pu 236 Decay Corr'd Value}) \times (\text{SPKV}) / (1000 \text{ mL/L}) \times (\text{DF}) \times (\text{DDF}) / [(\text{C236}) \times (\text{SS}) \times (\text{D g/L}) \times (2220000 \text{ dpm}/\mu\text{Ci})]$				
Prepared By	Pu 238 dpm = $[(\text{Total AT Counts} / \text{TC}) - \text{Bkg} \times 1/\text{EFF} \times \text{C238}] - (\text{Pu-238 Tracer Value} \times \text{SPKV} \times \text{Pu 236 Tracer Recovery} / 100)$				
SEH	Pu 238 $\mu\text{Ci/L}$ = $[(\text{Pu 238 dpm}) \times (\text{DF}) \times (\text{DDF}) / (1000 \text{ mL/L})] / [(\text{Pu-236 Tracer Recovery} / 100) \times (2220000 \text{ dpm}/\mu\text{Ci}) \times (\text{D g/L}) \times (\text{SS})]$				
Chemist	Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} \times \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} \times \text{min})]\} \times 1.96 \times 100$				
JFR					
Analyst					
KNT					
Date Complete					
12/03/96	Pu 239/240 $\mu\text{Ci/mL}$	< 3.33E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analysis Date	Relative Counting Error =	7.0%			
12/02/96					
Analysis Time			Pu 239/240		
05:20 AM	Pu 238 $\mu\text{Ci/mL}$	8.76E-06	3.33E-06		
Sample Point	Relative Counting Error =	3.8%	Pu 238		
AY-102 GRAB	Pu 236 Tracer Recovery =	112.4%	3.33E-06		

Analyst:	KNT	Date:	03-Dec-96
Signature of Chemist:	JFR	Date:	

SAMPLE.WB1 REV 1.0

943128ML

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

Pu 238 and 239/240 : LA-943-128 (B-0)			LIQUID / SOLID		DUP
Type	DATE COUNTED		DEC-02-96	Pu 236 AEA FRAC (C236)	0.889
DUP	SAMPLE VOLUME in mL	SS	1.000	Pu 238 AEA FRAC (C238)	0.066
Work List	SAMPLE DILUTION FACTOR	DF	1.000	Pu 239 AEA FRAC (C239)	0.037
14091	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2409
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		126B43	BACKGROUND in cpm (Bkg)	0.030
Matrix	DETECTOR NUMBER		14	Pu 236 cpm	70.610
LIQUID	EFFICIENCY FACTOR	EFF	0.291	Pu 238 cpm	5.270
Batch Number	TRACER PREPARATION DATE		07/12/96	Pu 239 cpm	2.970
96010628	TRACER PREPARATION VALUE (dpm/mL)		2464.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2240.200	Pu 239/240 μ Ci/L =	4.1999E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000		

Decay Time = Date Counted - Tracer Preparation Date

S96T005457 Pu-236 Decay Corr'd Value = Pu-236 Preparation Value $\times$ $\{e^{-(\ln 2 \times \text{Decay Time}/1040.95)}\}$

Instrument Code Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) $\times$ C236 $\times$ 100 / (Pu-236 Decay Corr'd Value $\times$ SPKV $\times$ EFF)

WB27807 Pu 239/240 μ Ci/L = (C239) / (Pu 236 Decay Corr'd Value) $\times$ (SPKV) / (1000mL/L) $\times$ (DF) / (DDF) / $\{[(C236) \times (SS) \times (D \text{ g/L}) \times (2220000 \text{ dpm}/\mu\text{Ci})]\}$

Prepared By Pu 238 dpm = $\{[(\text{Total AT Counts} / \text{TC}) - \text{Bkg} \times 1/\text{EFF} \times \text{C238}] - (\text{Pu-238 Tracer Value} \times \text{SPKV} \times \text{Pu 236 Tracer Recovery} / 100)\}$

SEH Pu 238 μ Ci/L = $\{[(\text{Pu 238 dpm}) / (\text{DF} \times \text{DDF} \times 1000\text{mL/L})] / \{[(\text{Pu-236 Tracer Recovery} / 100) \times (2220000 \text{ dpm}/\mu\text{Ci}) \times (D \text{ g/L}) \times (SS)]\}\}$

Chemist Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} \times \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} \times \text{min})]\} \times 1.96 \times 100$

JFR

Analyst

KNT

Date Complete			
12/03/96	Pu 239/240 μ Ci/mL	4.20E-06	DETECTION LEVELS
Analysis Date	Relative Counting Error =	5.3%	in μ Ci/mL
12/02/96			Pu 239/240
Analysis Time			3.41E-06
05:20 AM	Pu 238 μ Ci/mL	7.49E-06	Pu 238
Sample Point	Relative Counting Error =	4.0%	3.41E-06
AY-102 GRAB	Pu 236 Tracer Recovery =	109.5%	

Analyst:	KNT	Date:	03-Dec-96
Signature of Chemist:	JFR	Date:	4 Dec 96

SAMPLE.WB1 REV 1.0

943128ML

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL14091-STD
 File ID: 14a1424.CNF

Counted on: 12/ 2/96 @10:22
 Detector:
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1677.1	1677.1	361.051	361.051	10.000	3.113	5.000	1.027
2?	19.6	19.6	302.613	302.015	14.000	4.620	7.000	1.457
3?	26.2	26.2	286.698	286.291	12.000	3.628	6.000	1.789
4?	11.8	11.8	268.906	268.426	8.000	2.098	4.000	0.585
5	2567.4	2567.4	228.609	228.608	10.000	3.261	5.000	1.455

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid		Count	%err	d/m	Activity uCi/ea
				Obs.	Diff.	FWHM	Rate c/m	@95	
1	Pu236	0.421	5.755	5.736	0.019	0.01	54.84	1.2	2976.7
2		????		5.464			0.71	14.6	
3		????		5.392			0.70	14.1	
4		????		5.310			0.41	17.3	
5	Pu240	0.540	5.144	5.126	0.018	0.02	70.31	1.1	3740.1
Totals:		0.961	<--valid peaks only-->				125.16		0.168E-02

DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0046)*Channel
 Energy range (MeV): 4.075 TO 6.430
 Efficiency = 0.0188 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	62548.0	100.000
Smoothed	62546.7	99.998
Composite fit	60952.6	97.449
Residuals	1595.4	2.551

Analyzed by:

SZC

1 Legend: 'Raw' = Modeled Peaks = 1,2,..., etc Display Max.: 17103.6

HNF-SD-WM-DP-222, REV. 0

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Row	Data	Dump	for	AEA	Spectrum:	14a1424.CNF	HNF-SD-WM-DP-222, REV. 0
1	0.	0.	0.	0.	0.	1.	1.
11	0.	1.	0.	2.	2.	4.	2.
21	2.	0.	3.	1.	2.	0.	1.
31	3.	0.	0.	1.	1.	0.	1.
41	0.	0.	1.	1.	0.	1.	3.
51	0.	3.	1.	0.	4.	1.	2.
61	1.	1.	1.	4.	1.	4.	4.
71	3.	4.	5.	5.	0.	2.	1.
81	3.	3.	0.	4.	1.	2.	2.
91	3.	4.	5.	0.	3.	3.	2.
101	4.	4.	1.	3.	2.	0.	1.
111	5.	3.	2.	4.	4.	1.	1.
121	2.	1.	3.	1.	0.	4.	3.
131	4.	9.	7.	8.	5.	5.	3.
141	6.	3.	7.	6.	2.	5.	5.
151	8.	14.	8.	13.	7.	6.	7.
161	8.	9.	12.	11.	12.	11.	13.
171	21.	13.	21.	20.	32.	20.	28.
181	39.	33.	45.	34.	59.	54.	61.
191	52.	67.	69.	81.	74.	86.	94.
201	140.	142.	150.	180.	214.	205.	227.
211	335.	393.	485.	540.	606.	654.	763.
221	1113.	1200.	1398.	1596.	1868.	2145.	2604.
231	2211.	1284.	444.	93.	12.	6.	2.
241	4.	2.	6.	4.	2.	5.	2.
251	3.	13.	6.	5.	5.	9.	5.
261	4.	8.	9.	7.	10.	12.	17.
271	15.	9.	5.	8.	8.	13.	14.
281	19.	19.	23.	33.	42.	39.	33.
291	20.	11.	17.	13.	17.	12.	21.
301	36.	30.	29.	30.	25.	22.	15.
311	27.	17.	34.	22.	18.	20.	25.
321	48.	48.	36.	54.	47.	60.	72.
331	82.	88.	93.	87.	126.	143.	151.
341	217.	262.	286.	328.	352.	398.	452.
351	945.	1042.	1052.	1051.	938.	1035.	1148.
361	1938.	1999.	1669.	1061.	424.	80.	9.
371	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	1.	0.	0.	0.	1.
431	1.	1.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.
451	0.	1.	0.	1.	0.	0.	1.
461	0.	1.	1.	0.	0.	0.	0.
471	4.	5.	0.	2.	0.	1.	3.
481	2.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.
511	1.	0.					

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL14091-BLANK
 File ID: 15a1598.CNF

Counted on: 12/ 2/96 @10:24
 Detector:
 Geometry number: 1
 Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1828.0	1828.0	360.285	360.285	10.000	3.350	5.000	1.345
2?	13.5	13.5	302.197	301.633	30.000	3.711	15.000	15.072
3	35.2	35.2	286.653	286.624	12.000	4.093	6.000	2.374
4?	9.8	9.8	268.073	267.565	12.000	3.681	6.000	1.033

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err @95	d/m	Activity uCi/ea	
			Exp.	Obs. Diff.					
1		0.991		5.732	0.02	53.53	1.2	2847.1	
2		????		5.462		0.26	23.7		
3	Th228	0.017	5.400	5.393	0.0070.02	0.90	10.0	67.2	
4		????		5.306		0.37	18.1		
Totals:		1.008	<--valid peaks only-->			54.42			

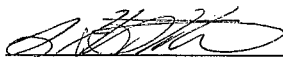
DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0046)*Channel
 Energy range (MeV): 4.075 TO 6.430
 Efficiency = 0.0188 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	25919.0	100.000
Smoothed	25918.8	99.999
Composite fit	26427.6	101.962
Residuals	-508.6	-1.962

Analyzed by:


 SZC

1 Legend: ' Raw ' = Modeled Peaks = 1,2,..., etc

Display Max.: 10547.1

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Raw Data	Dump	for AEA	Spectrum:	15a1598.CNF	HNF-SD-WM-DP-222, REV. 0	HNF-SD-WM-DP-222, REV. 0
1	0.	0.	0.	1.	0.	1.
11	0.	1.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.
31	1.	0.	0.	0.	0.	2.
41	0.	0.	0.	1.	0.	2.
51	1.	1.	1.	0.	1.	1.
61	1.	0.	1.	2.	1.	3.
71	2.	1.	2.	3.	1.	0.
81	0.	1.	0.	1.	0.	1.
91	0.	0.	0.	1.	0.	0.
101	1.	0.	0.	0.	1.	0.
111	1.	1.	0.	0.	0.	1.
121	0.	0.	1.	0.	0.	0.
131	1.	0.	0.	1.	1.	0.
141	0.	0.	0.	1.	0.	0.
151	1.	0.	0.	0.	1.	0.
161	0.	0.	1.	1.	1.	1.
171	1.	2.	2.	1.	1.	0.
181	0.	0.	0.	3.	0.	2.
191	0.	1.	0.	1.	3.	0.
201	1.	1.	1.	2.	0.	1.
211	1.	3.	0.	0.	1.	3.
221	1.	1.	6.	3.	4.	2.
231	5.	1.	2.	0.	1.	6.
241	1.	1.	2.	4.	2.	0.
251	7.	6.	4.	4.	3.	10.
261	5.	2.	5.	10.	10.	9.
271	8.	7.	8.	12.	4.	6.
281	14.	20.	21.	29.	35.	47.
291	12.	8.	6.	6.	10.	7.
301	15.	19.	11.	15.	11.	9.
311	5.	10.	3.	7.	7.	9.
321	11.	18.	25.	15.	16.	26.
331	32.	49.	54.	50.	63.	42.
341	147.	163.	209.	256.	312.	390.
351	986.	1038.	993.	1008.	1025.	1217.
361	2196.	1932.	1368.	673.	235.	47.
371	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.
451	1.	0.	0.	1.	0.	0.
461	1.	0.	0.	0.	0.	0.
471	1.	0.	4.	2.	4.	2.
481	0.	0.	1.	0.	1.	0.
491	0.	0.	0.	0.	0.	1.
511	0.	0.	0.	0.	0.	0.

DATA REDUCTION REPORT

SAMPLE
 S96T05367-SAM
 File ID: 16a1673.CNF

Counted on: 12/ 2/96 @10:26
 Detector:
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1920.1	1920.1	362.453	362.453	10.000	2.876	5.000	1.066
2	87.8	87.8	304.939	304.830	10.000	3.205	5.000	1.068
3	38.1	38.1	288.678	288.129	8.000	2.058	4.000	1.425
4?	14.9	14.9	269.945	269.548	10.000	3.061	5.000	0.995
5	123.7	123.7	230.755	230.748	12.000	3.942	6.000	1.870

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	c/m	@95		
1	Pu236	0.879	5.755	5.742	0.0130.01	57.39	1.2	3114.8	0.140E-02
2	Pu238	0.044	5.487	5.477	0.0100.01	2.87	5.6	211.7	0.954E-04
	Am241		5.479	5.477	0.002			162.2	0.731E-04
3	Th228	0.011	5.400	5.400	0.0000.01	0.74	16.4	55.6	0.250E-04
4	????			5.315		0.49	16.7		
5	Pu239	0.052	5.147	5.136	0.0110.02	3.43	4.9	182.3	0.821E-04
	Pu240		5.144	5.136	0.008			182.3	0.821E-04
Totals:			0.987	<--valid peaks only-->		64.42			

DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0046)*Channel
 Energy range (MeV): 4.075 TO 6.430
 Efficiency = 0.0188 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31342.0	100.000
Smoothed	31341.0	99.997
Composite fit	31160.9	99.422
Residuals	181.1	0.578

Analyzed by: 

SZC

1 Legend: 'Raw' = Modeled Peaks = 1,2,..., etc Display Max.: 10745.6

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Raw Data Dump for AEA Spectrum: 16a1673.CNF										
1	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
11	0.	2.	0.	2.	0.	0.	0.	0.	0.	0.
21	0.	1.	2.	1.	5.	0.	2.	1.	0.	0.
31	0.	0.	0.	1.	1.	0.	0.	1.	1.	0.
41	0.	0.	1.	0.	1.	0.	0.	2.	2.	0.
51	0.	0.	0.	0.	0.	0.	2.	0.	0.	2.
61	1.	0.	2.	1.	3.	1.	2.	1.	4.	2.
71	0.	2.	2.	1.	4.	1.	0.	1.	2.	0.
81	2.	1.	0.	0.	0.	0.	0.	0.	0.	1.
91	0.	1.	0.	0.	0.	1.	0.	0.	1.	0.
101	0.	0.	1.	0.	0.	0.	0.	1.	1.	2.
111	1.	1.	1.	1.	0.	0.	1.	1.	0.	0.
121	0.	0.	0.	1.	0.	2.	3.	0.	1.	2.
131	1.	1.	0.	0.	0.	2.	0.	1.	1.	1.
141	0.	2.	4.	6.	1.	1.	3.	4.	1.	5.
151	5.	5.	2.	3.	5.	5.	8.	4.	6.	6.
161	4.	3.	3.	3.	0.	2.	1.	2.	2.	0.
171	1.	1.	1.	1.	0.	3.	0.	1.	2.	1.
181	1.	1.	6.	3.	4.	1.	1.	1.	0.	2.
191	4.	2.	4.	5.	2.	3.	5.	4.	5.	4.
201	4.	6.	9.	3.	8.	9.	3.	12.	10.	7.
211	18.	12.	14.	14.	27.	21.	22.	30.	49.	50.
221	48.	52.	50.	47.	51.	77.	77.	95.	132.	136.
231	163.	118.	115.	71.	59.	26.	5.	1.	5.	3.
241	1.	3.	1.	3.	4.	2.	1.	5.	2.	6.
251	6.	7.	6.	7.	9.	7.	8.	9.	8.	6.
261	5.	11.	4.	7.	16.	14.	11.	16.	28.	20.
271	25.	16.	11.	13.	12.	14.	12.	22.	21.	17.
281	23.	27.	28.	26.	39.	51.	62.	64.	86.	53.
291	45.	44.	35.	26.	32.	54.	60.	50.	59.	47.
301	72.	77.	74.	92.	123.	99.	81.	55.	30.	21.
311	13.	13.	12.	24.	15.	23.	29.	25.	33.	33.
321	28.	32.	30.	44.	49.	55.	59.	58.	66.	70.
331	77.	76.	79.	92.	103.	119.	145.	148.	152.	175.
341	187.	198.	198.	243.	281.	316.	400.	469.	569.	660.
351	830.	982.	1111.	1165.	1067.	998.	978.	1104.	1350.	1548.
361	1866.	2264.	2339.	2148.	1441.	598.	149.	14.	1.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	1.	1.	1.
431	2.	0.	0.	0.	0.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
461	0.	0.	0.	1.	0.	0.	1.	0.	0.	2.
471	1.	2.	4.	2.	1.	3.	2.	2.	1.	1.
481	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
491	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DATA REDUCTION REPORT

SAMPLE
S96T5367-DUP
File ID: 5a5976.CNF

Counted on: 12/ 2/96 @10:36
Detector: AEA5
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1924.9	1924.9	363.109	363.109	14.000	5.456	7.000	1.680
2	88.0	88.0	305.122	304.754	12.000	7.604	6.000	1.009
3	122.9	122.9	230.484	230.433	14.000	5.793	7.000	2.274

PEAK RESULTS

Peak Error Limit: 30%

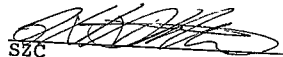
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff. FWHM	c/m			
1	Pu236	0.864	5.755	5.743	0.0120.03	72.85	1.0	875.6	0.394E-03
2	Pu238	0.075	5.487	5.474	0.0130.03	6.31	4.0	103.2	0.465E-04
	Am241		5.479	5.474	0.005			79.0	0.356E-04
3	Pu239	0.049	5.147	5.132	0.0150.03	4.12	4.7	48.5	0.219E-04
	Pu240		5.144	5.132	0.012			48.5	0.219E-04
Totals:			0.988	<--valid peaks only-->			83.27		

DETECTOR CALIBRATION

Energy(MEV) = $4.072 + (0.0046) \cdot \text{Channel}$
Energy range (MeV): 4.072 TO 6.428
Efficiency = 0.0849 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	40462.0	100.000
Smoothed	40461.7	99.999
Composite fit	39976.2	98.799
Residuals	485.8	1.201

Analyzed by: 

SZC

1 Legend: 'Raw' = Modeled Peaks = 1,2,..., etc

Display Max.: '13124.0

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1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	1.	0.	1.	2.	0.	1.	2.	1.	2.
21	0.	1.	0.	0.	0.	0.	0.	2.	0.	1.
31	1.	1.	0.	0.	0.	1.	1.	1.	0.	0.
41	1.	0.	0.	1.	0.	0.	0.	0.	1.	2.
51	1.	0.	1.	0.	0.	0.	0.	1.	0.	0.
61	1.	1.	0.	1.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	2.	1.	1.	0.	0.	2.
81	1.	1.	2.	0.	0.	0.	0.	0.	0.	0.
91	1.	1.	0.	0.	1.	1.	1.	1.	2.	1.
101	3.	2.	0.	0.	1.	0.	1.	1.	2.	1.
111	1.	1.	1.	0.	0.	1.	0.	1.	0.	1.
121	0.	1.	2.	1.	3.	1.	2.	2.	1.	7.
131	2.	2.	2.	0.	1.	2.	2.	3.	6.	3.
141	3.	3.	4.	4.	6.	5.	6.	4.	4.	2.
151	4.	7.	12.	5.	9.	8.	12.	6.	5.	2.
161	5.	7.	7.	2.	2.	5.	1.	7.	1.	4.
171	3.	4.	3.	4.	7.	6.	6.	3.	3.	8.
181	1.	8.	3.	2.	4.	5.	7.	4.	7.	4.
191	4.	4.	1.	7.	11.	7.	8.	10.	13.	8.
201	13.	12.	14.	15.	18.	16.	15.	17.	16.	19.
211	22.	21.	19.	27.	26.	31.	57.	44.	53.	57.
221	47.	54.	74.	65.	83.	89.	134.	119.	135.	153.
231	135.	120.	130.	95.	71.	57.	25.	22.	11.	6.
241	5.	6.	8.	7.	10.	10.	10.	11.	8.	14.
251	4.	11.	4.	13.	14.	11.	17.	12.	15.	18.
261	8.	10.	14.	10.	13.	22.	20.	21.	22.	30.
271	26.	19.	27.	33.	19.	28.	30.	23.	24.	28.
281	30.	33.	40.	52.	53.	55.	65.	67.	67.	64.
291	59.	69.	66.	63.	66.	62.	75.	71.	91.	73.
301	86.	101.	92.	115.	101.	124.	102.	75.	78.	59.
311	52.	38.	60.	40.	47.	51.	57.	58.	73.	68.
321	68.	62.	71.	87.	80.	88.	113.	106.	117.	102.
331	131.	154.	164.	160.	165.	187.	178.	206.	237.	241.
341	294.	290.	333.	363.	377.	458.	502.	568.	716.	746.
351	817.	962.	1035.	1170.	1234.	1298.	1411.	1473.	1556.	1775.
361	1879.	2069.	2091.	2079.	2024.	1548.	1138.	729.	436.	229.
371	105.	44.	23.	7.	12.	4.	2.	1.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
431	0.	1.	0.	0.	1.	1.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
461	1.	1.	0.	1.	0.	0.	0.	1.	1.	2.
471	1.	1.	0.	1.	3.	3.	3.	2.	6.	2.
481	2.	2.	3.	1.	1.	0.	0.	0.	0.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5457-SAM
 File ID: 7a7565.CNF

Counted on: 12/ 2/96 @10:38
 Detector: AEA7
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	895.4	895.4	362.642	362.642	30.000	45.343	15.000	9.655
2	32.6	32.6	309.565	309.565	22.000	0.423	11.000	0.017
3	29.6	29.6	233.527	233.345	22.000	18.920	11.000	4.815

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	c/m			
1	Cm243	0.910	5.779	5.761	0.018	70.31	1.1	291.2	0.131E-03
	Pu236		5.755	5.761	-0.006			217.0	0.977E-04
2	Pu238	0.079	5.487	5.516	-0.029	6.08	4.3	25.5	0.115E-04
	Am241		5.479	5.516	-0.037			19.5	0.881E-05
3	Pu239	0.021	5.147	5.166	-0.019	1.66	12.2	5.0	0.226E-05
	Pu240		5.144	5.166	-0.022			5.0	0.226E-05
Totals:			1.010	<--valid peaks only-->			78.05		

DETECTOR CALIBRATION

Energy (MEV) = 4.093 + (0.0046)*Channel
 Energy range (MeV): 4.093 TO 6.448
 Efficiency = 0.3307 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	37091.0	100.000
Smoothed	37091.8	100.002
Composite fit	37464.3	101.006
Residuals	-373.3	-1.006

Analyzed by: 

SZC

331

Raw Data	Dump	for AEA	Spectrum	7a7565.CNF	HNF-SD-WM-DP-222, REV. 0
1	0.	0.	0.	0.	0.
11	1.	0.	0.	2.	1.
21	0.	0.	0.	0.	0.
31	1.	0.	1.	0.	1.
41	0.	1.	0.	1.	0.
51	1.	0.	0.	1.	0.
61	0.	0.	0.	2.	1.
71	0.	0.	0.	1.	0.
81	0.	0.	2.	0.	0.
91	2.	0.	1.	0.	0.
101	1.	1.	2.	1.	1.
111	1.	1.	0.	1.	2.
121	2.	3.	0.	3.	1.
131	3.	1.	4.	1.	1.
141	1.	4.	2.	7.	2.
151	8.	2.	3.	2.	1.
161	3.	4.	3.	4.	5.
171	6.	2.	7.	4.	3.
181	4.	2.	5.	3.	5.
191	8.	8.	4.	5.	4.
201	6.	9.	11.	7.	13.
211	19.	19.	26.	23.	22.
221	45.	39.	41.	45.	36.
231	36.	43.	47.	48.	44.
241	28.	36.	30.	30.	22.
251	24.	18.	18.	14.	14.
261	13.	13.	15.	9.	12.
271	23.	29.	20.	22.	31.
281	33.	37.	34.	26.	36.
291	45.	53.	53.	42.	58.
301	67.	75.	56.	68.	75.
311	84.	66.	61.	60.	59.
321	94.	105.	95.	113.	114.
331	173.	176.	166.	207.	232.
341	364.	400.	436.	501.	507.
351	699.	764.	768.	804.	823.
361	900.	889.	881.	927.	903.
371	673.	630.	568.	545.	509.
381	261.	236.	208.	177.	156.
391	64.	53.	58.	41.	29.
401	10.	14.	7.	5.	7.
411	1.	1.	2.	4.	3.
421	2.	0.	0.	0.	0.
431	0.	0.	3.	1.	0.
441	0.	0.	0.	0.	0.
451	1.	1.	1.	0.	0.
461	0.	0.	1.	0.	0.
471	2.	1.	1.	3.	1.
481	1.	1.	2.	1.	2.
491	0.	3.	0.	0.	1.
511	7.	0.			

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T5457-DUP
File ID: 8a8766.CNF

Counted on: 12/ 2/96 @10:39
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1576.0	1576.0	361.960	361.960	18.000	10.836	9.000	3.255
2	65.4	65.4	304.204	303.603	20.000	11.099	10.000	1.340
3	70.8	70.8	230.449	230.272	20.000	10.114	10.000	3.358

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Cm243	0.889	5.779	5.733	0.0460.05	70.61	1.1	227.2	0.102E-03
	Pu236		5.755	5.733	0.022			169.2	0.762E-04
2	Am241	0.066	5.479	5.464	0.0150.05	5.27	4.5	13.2	0.593E-05
	Pu238		5.487	5.464	0.023			17.2	0.774E-05
3	Pu239	0.037	5.147	5.127	0.0200.05	2.97	5.8	7.0	0.314E-05
	Pu240		5.144	5.127	0.017			7.0	0.314E-05
Totals:			0.993	<--valid peaks only-->			78.84		

DETECTOR CALIBRATION

Energy(MEV) = 4.068 + (0.0046)*Channel
Energy range (MeV): 4.068 TO 6.423
Efficiency = 0.4258 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	38134.0	100.000
Smoothed	38134.0	100.000
Composite fit	37849.2	99.253
Residuals	284.8	0.747

Analyzed by:

SZC

1 Legend: 'Raw' = Modeled Peaks = 1,2,..., etc

Display Max.: 11030.4

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1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	1.	0.	0.	0.	0.	0.	2.	0.	0.
21	0.	2.	4.	1.	0.	0.	0.	2.	0.	0.
31	0.	2.	0.	0.	1.	1.	0.	0.	0.	0.
41	0.	0.	0.	2.	0.	1.	1.	0.	2.	1.
51	0.	0.	0.	0.	0.	1.	3.	0.	1.	0.
61	1.	2.	2.	0.	0.	1.	1.	0.	1.	1.
71	2.	0.	1.	0.	0.	1.	0.	1.	0.	0.
81	0.	0.	0.	2.	1.	0.	0.	1.	1.	0.
91	1.	0.	1.	0.	0.	3.	1.	1.	1.	1.
101	1.	0.	0.	0.	0.	0.	0.	2.	2.	0.
111	0.	0.	0.	0.	0.	2.	2.	0.	0.	2.
121	1.	2.	1.	2.	2.	3.	0.	3.	1.	1.
131	1.	3.	1.	2.	2.	2.	0.	6.	4.	1.
141	1.	4.	5.	6.	3.	4.	4.	5.	3.	4.
151	3.	6.	0.	2.	9.	8.	5.	7.	5.	1.
161	10.	8.	5.	5.	6.	2.	5.	4.	4.	0.
171	1.	5.	2.	2.	4.	2.	0.	3.	4.	5.
181	2.	8.	3.	6.	3.	3.	3.	2.	1.	6.
191	8.	3.	5.	10.	8.	6.	4.	5.	3.	5.
201	6.	8.	10.	7.	13.	13.	14.	13.	16.	15.
211	22.	20.	13.	25.	30.	34.	32.	33.	29.	38.
221	38.	49.	56.	45.	68.	68.	66.	71.	94.	78.
231	78.	72.	77.	74.	60.	53.	41.	29.	26.	14.
241	13.	11.	9.	12.	8.	7.	6.	6.	7.	10.
251	10.	5.	7.	14.	15.	16.	9.	7.	10.	11.
261	26.	11.	11.	21.	15.	16.	20.	16.	23.	26.
271	26.	24.	27.	31.	19.	28.	30.	34.	33.	26.
281	40.	36.	32.	40.	45.	45.	53.	36.	56.	49.
291	62.	66.	56.	63.	46.	54.	63.	70.	79.	57.
301	65.	78.	91.	82.	85.	80.	71.	70.	51.	58.
311	69.	45.	53.	47.	40.	53.	55.	59.	56.	49.
321	51.	66.	67.	79.	86.	82.	91.	104.	105.	127.
331	131.	164.	149.	146.	178.	188.	185.	222.	235.	263.
341	276.	324.	381.	404.	435.	517.	536.	581.	675.	772.
351	877.	944.	984.	1145.	1179.	1342.	1342.	1411.	1543.	1596.
361	1694.	1655.	1658.	1557.	1400.	1236.	1068.	867.	657.	525.
371	346.	241.	139.	103.	46.	23.	11.	5.	4.	1.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
431	1.	0.	1.	0.	1.	0.	0.	0.	0.	2.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
461	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
471	0.	1.	2.	0.	0.	0.	4.	0.	0.	3.
481	1.	2.	2.	4.	1.	1.	4.	1.	2.	1.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed RadChem Report for Worklist#: 14092

Analyst: jmv

Instrument: AB16

Book# 62 B56

Method: LA-943-128 Rev/Mod B-0

Worklist Comment: AY-102 Grab. Determine sample size using ludlum.Std:1.0.new

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	0PU23901 PU23901 LIQUID		1.49E-04	1.42E-4	95.302	% Recovery
1 STD	0	0	0PU23901 PU23901E LIQUID		1.00	2.20E+00	2.200	% Ct Error
1 STD	0	0	0PU23901 PU23901T LIQUID		100	9.13E+01	91.300	% Recovery
2 BLNK	0	0	0PU23901 PU23901 LIQUID		1	<3.07E-6		uCi/mL
2 BLNK	0	0	0PU23901 PU23901T LIQUID		100	1.08E+02	108.000	% Recovery
2 BLNK	0	0	0PU23901 PU23901E LIQUID		1.00	1.00E+02	100.000	uCi/mL
3 SAMPLE	S96T005458	0	0PU23901 PU23901 LIQUID		N/A	3.20E-06	320.0E-008	uCi/mL
3 SAMPLE	S96T005458	0	0PU23901 PU23901T LIQUID		N/A	1.03E+02	0.0E+000	% Recovery
3 SAMPLE	S96T005458	0	0PU23901 PU23901E LIQUID		N/A	7.54E+00	0.0E+000	% Ct. Error
4 DUP	S96T005458	0	0PU23901 PU23901 LIQUID		<3.20E-6	<3.48E-6		RPD
4 DUP	S96T005458	0	0PU23901 PU23901T LIQUID		100	9.49E+01	94.900	% Recovery
4 DUP	S96T005458	0	0PU23901 PU23901E LIQUID		1.00	1.01E+01	10.100	% Ct Error
5 SAMPLE	S96T005458	0	0PU23901 PU23901 LIQUID		N/A	7.88E-06	848.0E-008	uCi/mL
5 SAMPLE	S96T005458	0	0PU23901 PU23901T LIQUID		N/A	6.57E+01	0.0E+000	% Recovery
5 SAMPLE	S96T005458	0	0PU23901 PU23901E LIQUID		N/A	5.03E+00	0.0E+000	% Ct. Error
6 DUP	S96T005458	0	0PU23901 PU23901 LIQUID		7.88E-6	7.98E-6	1.261	RPD
6 DUP	S96T005458	0	0PU23901 PU23901T LIQUID		100	5.96E+01	59.600	% Recovery
6 DUP	S96T005458	0	0PU23901 PU23901E LIQUID		1.00	5.36E+00	5.360	% Ct Error

Final page for worklist# 14092

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Relyea 10 Dec 96
Reviewer Signature _____ Date _____
Validated

LABCORE Data Entry Template for Worklist# 14092

Analyst: Jm Instrument: PU01 #16 Book# 62856

Method: LA-943-128 Rev/Mod _____

Worklist Comment: AY-102 Grab.Determine sample size using ludlum.Std:1.0.new

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@PU23901	LIQUID		
2 BLNK			@PU23901	LIQUID		
3 SAMPLE	S96T005458 0		@PU23901	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T					
4 DUP	S96T005458 0		@PU23901	LIQUID		
5 SAMPLE	S96T005459 0		@PU23901	LIQUID	96001366	AY-102 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T					
6 DUP	S96T005459 0		@PU23901	LIQUID		

Final page for worklist # 14092

Jm 12-2-96
Analyst Signature Date

Lee Hogan 12/6/96
Analyst Signature Date
Cf. Quinn 12/6/96

Data Entry Comments:

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID

Type	DATE COUNTED	DEC-05-96	Pu 238 AEA FRAC (C236)	STD
STD	SAMPLE VOLUME in mL	SS	1.000	0.405
Work List	SAMPLE DILUTION FACTOR	DF	1.000	0.000
14092	TRACER VOLUME in mL	SPKV	0.100	0.570
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	4122
@PU23901	TRACER BOOK NO	126B43	AT COUNT TIME (MIN)	30
Matrix	DETECTOR NUMBER	16	BACKGROUND in cpm (Bkg)	0.500
LIQUID	EFFICIENCY FACTOR	EFF	0.272	28.210
Batch Number	TRACER PREPARATION DATE	07/12/96	Pu 238 cpm	0.000
96010629	TRACER PREPARATION VALUE (dpm/mL)	2464.000	Pu 239 cpm	39.750
Rerun	PU-238 DECAY CORR'D VALUE (dpm/mL)	2235.730	AEA COUNT TIME	480
0	PU-238 TRACER VALUE (dpm/mL)	0.000	Pu 239/240 µCi/L	1.4174E-01
Sample Prep	STANDARD BOOK NO	62B56		
N/A	STANDARD VALUE in µCi/mL	1.485E-04		
Sample #				
WL14092				
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date			
WB27806	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(ln2 * Decay Time)/1040.95}]			
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Corr'd Value * SPKV			
SEH	Pu 239/240 µCi/L = (C239) / (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (2220000 dpm/µCi)]			
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)			
JFR	Pu 238 µCi/L = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-238 Tracer Recovery / 100) (2220000 dpm/µCi) (D g/L) (SS)]			
Analyst	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100			
JMV				
Date Complete				
12/06/96	Pu 239/240 µCi/mL	1.42E-04	DETECTION LEVELS in µCi/mL Pu 239/240 8.17E-06	
Analysis Date	Relative Counting Error	= 2.2%		
12/04/96				
Analysis Time				
02:25 PM				
Sample Point				
AY-102 GRAB	Pu 236 Tracer Recovery	= 91.3%		

Analyst:	JMV	Date:	06-Dec-96
Signature of Chemist:	JFR	Date:	10 Dec-96

STANDARD.WB1 REV 1.0

943128ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

Type	DATE COUNTED	DEC-05-96	Pu 236 AEA FRAC (C236)	BLNK
BLNK	SAMPLE VOLUME in mL	SS	1.000	Pu 238 AEA FRAC (C238)
Work List	SAMPLE DILUTION FACTOR	DF	1.000	Pu 239 AEA FRAC (C239)
14092	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cp (Bkg)	0.500
Matrix	DETECTOR NUMBER	16	Pu 236 cpm	50.290
LIQUID	EFFICIENCY FACTOR	EFF	0.2717	Pu 238 cpm
Batch Number	TRACER PREPARATION DATE	07/12/96	Pu 239 cpm	0.000
96010629	TRACER PREPARATION VALUE (dpm/mL)	2464.00	AEA COUNT TIME	480
Retain	PU-236 DECAY CORR'D VALUE (dpm/mL)	2235.73	Pu 239/240 $\mu\text{Ci/L}$ =	< 3.070E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.00		
Sample Prep				
N/A				
Sample #	Decay Time = Date Counted - Tracer Preparation Date			
WL14092	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]			
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)			
WB27805	Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000 mL/L) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/μCi)]			
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)			
SEH	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) * (DF) * (DDF) * (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/μCi) * (D g/L) * (SS)]			
Chemist	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100			
JFR				
Analyst				
JMV				
Date Complete				
12/05/96	Pu 239/240 $\mu\text{Ci/mL}$	< 3.07E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analysis Date	Relative Counting Error	= 100.0%		
12/04/96			Pu 239/240	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.		3.07E-06	
02:26 PM	Pu 238 $\mu\text{Ci/mL}$	< 3.07E-06	Pu 238	
Sample Point	Relative Counting Error	= 100.0%	3.07E-06	
AY-102 GRAB	Pu 236 Tracer Recovery	= 108.2%		

Analyst:	JMV	Date:	06-Dec-96
Signature of Chemist:	<i>John Relyea</i>	Date:	10 Dec 96
BLANK.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0)**LIQUID / SOLID**

				SAMPLE	
Type	DATE COUNTED	DEC-05-96	PU 236 AEA FRAC (C236)		0.943
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.029
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.028
14092	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2012
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)		0.500
Matrix	DETECTOR NUMBER	16	PU 236 cpm		48.390
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm	1.510
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm		1.450
96010629	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME		480
Retun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2235.730	Pu 239/240 $\mu\text{Ci/L}$ =	<	3.2039E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

S96T005458

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value $\times [e^{(-\ln 2 \times \text{Decay Time}/1040.95)}]$

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) $\times \text{C236} \times 100 / (\text{Pu-236 Decay Corr'd Value} \times \text{SPKV} \times \text{EFF})$

WB27806

Pu 239/240 $\mu\text{Ci/L}$ = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μCi)]

Prepared By

Pu 238 dpm = [(Total AT Counts / TC) - Bkg $\times 1/\text{EFF} \times \text{C238}$] - (Pu-238 Tracer Value $\times \text{SPKV} \times \text{Pu 236 Tracer Recovery} / 100)$

SEH

Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μCi)(D g/L)(SS)]

Chemist

Relative Counting Error = Square Root of $[(1/(\text{Pu 236 cpm} \times \text{min})) + (1/(\text{Pu 238 or 239/240 cpm} \times \text{min}))] \times 1.96 \times 100$

JFR

Analyst

JMV

Date Complete

12/05/96

Analysis Date

12/04/96

Analysis Time

02:25 PM

Sample Point

AY-102 GRAB

Pu 239/240 $\mu\text{Ci/mL}$	< 3.20E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$
Relative Counting Error =	7.5%	
NOTE: Pu 238 Result is a LESS THAN Value.		
Pu 238 $\mu\text{Ci/mL}$	< 3.20E-06	
Pu 239/240	3.20E-06	Pu 239/240
Relative Counting Error =	7.4%	Pu 238
Pu 236 Tracer Recovery =	103.3%	3.20E-06

Analyst:	JMV	Date:	06-Dec-96
Signature of Chemist:	JFR	Date:	10 Dec 96

SAMPLE.WB1 REV 1.0

943128ML

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

				DUP	
Type	DATE COUNTED	DEC-05-96	PU 236 AEA FRAC (C236)		0.915
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.132
Work Label	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.012
14092	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1908
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43		BACKGROUND in cpm (Bkg)	0.500
Matrix	DETECTOR NUMBER	16	PU 236 cpm		61.730
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm	8.900
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm		0.800
96010629	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2235.730	Pu 239/240 $\mu\text{Ci/L}$ =	<	3.4776E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

S96T005458

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

WB27806

Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV / (1000 mL/L)) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μCi)]

Prepared By

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

SEH

Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) * (DF) * (DDF) * (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μCi) * (D g/L) * (SS)]

Chemist

Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

JFR

Analyst

JMV

Date Complete

12/05/96

Pu 239/240 $\mu\text{Ci/mL}$ < 3.48E-06

Analysis Date

Relative Counting Error = 10.1%

12/04/96

Analysis Time

02:28 PM

Pu 238 $\mu\text{Ci/mL}$ 1.45E-05

Sample Point

Relative Counting Error = 3.2%

AY-102 GRAB

Pu 236 Tracer Recovery = 94.9%

DETECTION

LEVELS

in $\mu\text{Ci/mL}$

Pu 239/240

3.48E-06

Pu 238

3.48E-06

Analyst:	JMV	Date:	06-Dec-96
Signature of Chemist:	JFR	Date:	10 Dec 96

SAMPLE.WB1 REV 1.0

943128ML

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

				SAMPLE	
Type	DATE COUNTED	DEC-05-96	PU 236 AEA FRAC (C236)		0.843
SAMPLE	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)		0.070
Work List	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)		0.066
14092	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS		1436
Test Code	DIGEST DILUTION FACTOR	DDF 1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	126B43	BACKGROUND in cpm (Bkg)		0.500
Matrix	DETECTOR NUMBER	16	PU 236 cpm		43.710
LIQUID	EFFICIENCY FACTOR	EFF 0.272	PU 238 cpm		3.650
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm		3.410
96010629	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2235.730	Pu 239/240 μ Ci/L		7.8847E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

S96T005459

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

WB27806

Pu 239/240 μ Ci/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μ Ci)]

Prepared By

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

SEH

Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]

Chemist

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

JFR

Analyst

JMV

Date Complete

12/05/96

Pu 239/240 μ Ci/mL 7.88E-06

Analysis Date

Relative Counting Error = 5.0%

12/04/96

Analysis Time

DETECTION
LEVELS
in μ Ci/mL

02:25 PM

Pu 238 μ Ci/mL 8.36E-06

Pu 239/240

Sample Point

Relative Counting Error = 4.9%

5.45E-06

AY-102 GRAB

Pu 236 Tracer Recovery = 65.7%

Pu 238

5.45E-06

Analyst:	JMV	Date:	06-Dec-96
Signature of Chemist:	JFR	Date:	10 Dec 96

SAMPLE.WB1 REV 1.0

943128ML

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-128 (B-0)**LIQUID / SOLID**

Type	DATE COUNTED	DEC-05-96	Pu 238 AEA FRAC (C236)	DUP	0.846
DUP	SAMPLE VOLUME in mL	SS	1.000	Pu 238 AEA FRAC (C238)	0.080
Work List	SAMPLE DILUTION FACTOR	DF	1.000	Pu 239 AEA FRAC (C239)	0.067
14092	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1299
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43		BACKGROUND in cpm (Bkg)	0.500
Matrix	DETECTOR NUMBER	16		Pu 236 cpm	38.030
LIQUID	EFFICIENCY FACTOR	EFF	0.272	Pu 238 cpm	3.600
Batch Number	TRACER PREPARATION DATE	07/12/96		Pu 239 cpm	3.010
96010629	TRACER PREPARATION VALUE (dpm/mL)	2464.000		AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2235.730		Pu 239/240 µCi/L	7.9757E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

S96T005459

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value $\times$ $[e \text{ to the power of } \{(-\ln 2 * \text{Decay Time}/1040.95)\}]$

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

WB27806

Pu 239/240 µCi/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Prepared By

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

SEH

Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/µCi)(D g/L)(SS)]

Chemist

Relative Counting Error = Square Root of $\{[1/(\text{Pu 236 cpm} * \text{min})] + [1/(\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$

JFR

Analyst

JMV

Date Complete

12/05/96

Analysis Date

12/04/96

Analysis Time

02:25 PM

Sample Point

AY-102 GRAB

Pu 239/240 µCi/mL	7.98E-06	DETECTION LEVELS in µCi/mL
Relative Counting Error =	5.4%	
Pu 238 µCi/mL	9.52E-06	
Relative Counting Error =	4.9%	
Pu 236 Tracer Recovery =	59.6%	Pu 239/240
		5.99E-06
		Pu 238
		5.99E-06

Analyst:	JMV	Date:	06-Dec-96
Signature of Chemist:	<i>John Reber</i>	Date:	10 Dec 96

SAMPLE.WB1 REV 1.0

943128ML

Westinghouse Hanford Co.
G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
WL14092-STD-PU
File ID: 14a1430.CNF

Counted on: 12/ 5/96 @ 2:50
Detector:
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	899.9	899.9	361.188	361.188	12.000	3.252	6.000	1.158
2?	20.3	20.3	287.649	287.619	10.000	4.528	5.000	2.165
3	1507.8	1507.8	228.695	228.695	10.000	3.394	5.000	1.650

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea	
			Exp.	Obs.	Diff.					
1	Pu236	0.405	5.755	5.759	-.0040	0.02	28.21	1.7	1002.9	0.452E-03
2	????			5.413			0.58	12.2		
3	Pu239	0.570	5.147	5.136	0.0110	0.02	39.75	1.4	1385.2	0.624E-03
	Pu240		5.144	5.136	0.008				1385.2	0.624E-03
Totals:			0.975	<--valid peaks only-->			67.96			

DETECTOR CALIBRATION

Energy(MEV) = 4.061 + (0.0047)*Channel
Energy range (MeV): 4.061 TO 6.468
Efficiency = 0.0287 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	33472.0	100.000
Smoothed	33470.2	99.994
Composite fit	32905.2	98.307
Residuals	566.8	1.693

Analyzed by: _____

VR

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 10089.7

3
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2

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1	0.	0.	0.	2.	0.	2.	3.	1.	1.	1.
11	0.	2.	0.	0.	1.	1.	0.	0.	0.	1.
21	1.	1.	0.	1.	0.	1.	2.	0.	2.	1.
31	0.	1.	0.	0.	1.	0.	0.	0.	1.	2.
41	0.	1.	1.	0.	0.	4.	0.	0.	0.	1.
51	2.	0.	1.	1.	2.	0.	2.	2.	2.	3.
61	3.	4.	2.	3.	1.	3.	4.	1.	7.	4.
71	6.	4.	3.	0.	3.	3.	0.	2.	0.	2.
81	0.	1.	1.	1.	1.	1.	0.	1.	0.	2.
91	0.	0.	2.	0.	0.	0.	0.	1.	0.	2.
101	1.	0.	1.	3.	0.	0.	1.	1.	1.	0.
111	2.	1.	3.	1.	1.	1.	0.	0.	1.	1.
121	0.	2.	1.	1.	2.	2.	1.	3.	2.	0.
131	2.	2.	0.	1.	0.	0.	4.	1.	2.	1.
141	0.	3.	0.	1.	1.	1.	1.	0.	2.	0.
151	0.	1.	3.	4.	2.	1.	2.	3.	0.	1.
161	2.	4.	5.	4.	4.	10.	7.	6.	3.	4.
171	8.	1.	3.	5.	7.	4.	8.	9.	7.	6.
181	15.	12.	13.	12.	14.	15.	8.	22.	19.	17.
191	14.	28.	22.	29.	29.	29.	24.	40.	37.	35.
201	49.	55.	53.	75.	80.	72.	104.	111.	114.	141.
211	147.	172.	243.	238.	310.	361.	396.	465.	577.	586.
221	637.	694.	824.	854.	1035.	1355.	1522.	1675.	1807.	1644.
231	1355.	837.	361.	71.	15.	2.	0.	2.	1.	2.
241	1.	2.	2.	2.	1.	2.	2.	1.	2.	1.
251	1.	4.	8.	5.	3.	4.	2.	3.	2.	3.
261	5.	4.	2.	4.	1.	6.	6.	5.	4.	5.
271	11.	7.	2.	5.	3.	3.	5.	3.	8.	5.
281	12.	8.	18.	13.	8.	17.	26.	30.	23.	11.
291	9.	3.	9.	8.	7.	6.	6.	4.	6.	9.
301	14.	10.	9.	8.	9.	8.	5.	3.	2.	4.
311	5.	9.	2.	6.	14.	4.	9.	7.	7.	6.
321	10.	15.	13.	16.	10.	24.	13.	22.	20.	18.
331	30.	33.	36.	27.	51.	50.	53.	56.	74.	89.
341	97.	104.	133.	140.	185.	210.	264.	290.	340.	437.
351	489.	541.	580.	552.	486.	525.	570.	666.	812.	973.
361	1036.	1076.	913.	671.	288.	64.	11.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	0.	1.	0.	1.	2.	2.	3.	0.	0.	2.
471	5.	4.	3.	5.	3.	4.	3.	0.	2.	1.
481	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	2.	1.	0.	1.	0.	1.	0.	1.	0.	2.
511	0.	0.								

DATA REDUCTION REPORT

SAMPLE
 WL14092-BLK-PU
 File ID: 15a1504.CNF

Counted on: 12/ 5/96 @ 2:51
 Detector:
 Geometry number: 1
 Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1438.0	1438.0	359.868	359.868	12.000	3.948	6.000	1.252
2	28.1	28.1	286.116	286.025	10.000	4.084	5.000	1.729
3?	8.4	8.4	271.264	270.352	8.000	1.446	4.000	0.473

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Pu236	0.984	5.755	5.753	0.002	0.02	50.29	1.3	1787.9	0.805E-03
2	Th228	0.016	5.400	5.406	-0.006	0.02	0.83	10.8	40.8	0.184E-04
3		????		5.332			0.25	25.8		
Totals:		1.001	<--valid peaks only-->				51.12			

DETECTOR CALIBRATION

Energy(MEV) = 4.061 + (0.0047)*Channel
 Energy range (MeV): 4.061 TO 6.468
 Efficiency = 0.0287 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24521.0	100.000
Smoothed	24521.3	100.001
Composite fit	24655.1	100.547
Residuals	-134.1	-0.547

Analyzed by: VR

[illegible]

Raw Data Dump for AEA Spectrum: 15a1504.CNF										
1	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	0.	1.	1.	2.	0.	0.	1.	4.	0.
31	0.	2.	0.	0.	0.	0.	0.	2.	0.	0.
41	0.	0.	1.	0.	2.	0.	1.	1.	0.	1.
51	2.	5.	2.	0.	0.	3.	1.	0.	0.	2.
61	0.	3.	3.	6.	5.	4.	9.	8.	2.	1.
71	3.	3.	2.	3.	1.	0.	0.	1.	1.	1.
81	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.
91	1.	0.	0.	0.	2.	0.	1.	0.	0.	1.
101	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
111	0.	0.	1.	1.	0.	3.	0.	0.	0.	0.
121	1.	1.	0.	1.	0.	0.	3.	0.	0.	0.
131	0.	2.	0.	0.	0.	2.	0.	0.	0.	0.
141	0.	0.	1.	2.	1.	0.	0.	1.	0.	2.
151	0.	1.	2.	1.	2.	1.	1.	1.	0.	0.
161	2.	0.	0.	1.	0.	1.	0.	0.	1.	0.
171	0.	1.	0.	0.	0.	0.	1.	3.	1.	1.
181	2.	1.	3.	2.	1.	0.	1.	1.	0.	1.
191	0.	1.	1.	0.	0.	2.	0.	1.	0.	1.
201	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
211	0.	1.	4.	3.	1.	2.	2.	2.	1.	3.
221	1.	5.	3.	4.	3.	1.	3.	3.	1.	2.
231	4.	3.	3.	1.	2.	1.	1.	2.	1.	2.
241	6.	6.	4.	4.	3.	1.	5.	3.	4.	4.
251	4.	2.	4.	6.	9.	7.	4.	5.	3.	6.
261	3.	6.	7.	7.	5.	7.	14.	8.	13.	10.
271	23.	11.	14.	8.	11.	10.	8.	15.	18.	13.
281	15.	32.	33.	22.	25.	41.	29.	32.	17.	9.
291	6.	8.	13.	11.	12.	10.	2.	8.	10.	14.
301	9.	7.	9.	14.	15.	11.	15.	12.	12.	8.
311	12.	12.	23.	15.	23.	18.	23.	29.	25.	33.
321	32.	27.	39.	31.	38.	48.	45.	46.	62.	75.
331	80.	81.	98.	105.	122.	124.	165.	168.	176.	215.
341	230.	264.	329.	371.	411.	514.	528.	656.	735.	855.
351	888.	991.	920.	969.	995.	1123.	1276.	1401.	1593.	1576.
361	1601.	1440.	1013.	529.	190.	34.	6.	2.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
421	1.	1.	1.	2.	2.	0.	0.	1.	0.	0.
431	0.	0.	0.	0.	0.	1.	1.	1.	0.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
451	0.	0.	1.	1.	0.	0.	0.	0.	1.	0.
461	2.	2.	0.	1.	1.	0.	1.	3.	1.	4.
471	8.	7.	4.	10.	2.	4.	4.	4.	4.	3.
481	0.	1.	1.	1.	1.	1.	1.	0.	2.	0.
491	1.	0.	0.	0.	0.	0.	2.	1.	0.	1.
511	0.	0.								

Westinghouse Hanford Co.
G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005458-SAM-P
File ID: 16a1679.CNF

Counted on: 12/ 5/96 @ 2:51
Detector:
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1444.2	1444.2	362.102	362.102	10.000	3.273	5.000	1.055
2	38.2	38.2	303.756	303.426	10.000	3.562	5.000	0.919
3	14.2	14.2	288.821	286.743	12.000	3.948	6.000	0.800
4	46.3	46.3	230.531	230.509	10.000	4.506	5.000	1.789
5?	11.1	11.1	157.986	157.983	12.000	3.520	6.000	0.971

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Pu236	0.943	5.755	5.763	-0.0080.02	48.39	1.3	1720.4	0.775E-03
	Cm243		5.779	5.763	0.016			2309.5	0.104E-02
2	Pu238	0.029	5.487	5.487	0.0000.02	1.51	8.5	73.1	0.329E-04
	Am241		5.479	5.487	-0.008			56.0	0.252E-04
3	Th228	0.013	5.400	5.409	-0.0090.02	0.68	17.1	33.3	0.150E-04
4	Pu239	0.028	5.147	5.145	0.0020.02	1.45	7.6	50.6	0.228E-04
	Pu240		5.144	5.145	-0.001			50.6	0.228E-04
5		????		4.804		0.42	13.9		
-----			-----						
Totals:		1.014	<--valid peaks only-->			52.03			

DETECTOR CALIBRATION

Energy(MEV) = 4.061 + (0.0047)*Channel
Energy range (MeV): 4.061 TO 6.468
Efficiency = 0.0287 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24625.0	100.000
Smoothed	24625.5	100.002
Composite fit	25177.9	102.245
Residuals	-552.9	-2.245

Analyzed by: _____

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7993.1

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Raw	Data	Dump	for	AEA	Spectrum:	16a1679.CNF	HNF-SD-WM-DP-222, REV. 0
1	0.	0.	0.	0.	0.	1.	0.
11	0.	1.	0.	0.	0.	2.	0.
21	0.	2.	0.	2.	1.	1.	2.
31	0.	0.	0.	0.	0.	0.	1.
41	0.	1.	0.	1.	0.	0.	0.
51	0.	0.	0.	2.	2.	1.	0.
61	1.	1.	4.	6.	3.	6.	0.
71	5.	4.	3.	1.	0.	1.	0.
81	1.	0.	0.	0.	0.	0.	0.
91	0.	1.	0.	0.	0.	1.	0.
101	1.	0.	0.	1.	0.	0.	1.
111	2.	0.	0.	0.	0.	0.	0.
121	1.	0.	0.	0.	2.	1.	0.
131	1.	2.	5.	1.	4.	3.	1.
141	6.	4.	4.	2.	4.	7.	3.
151	6.	6.	9.	7.	7.	6.	2.
161	7.	3.	2.	1.	1.	0.	5.
171	0.	1.	0.	1.	0.	2.	13.
181	0.	1.	0.	2.	0.	2.	0.
191	1.	1.	4.	2.	2.	4.	0.
201	0.	5.	2.	4.	5.	3.	3.
211	5.	5.	11.	8.	6.	12.	9.
221	22.	25.	20.	37.	27.	25.	16.
231	58.	47.	39.	33.	10.	18.	18.
241	4.	2.	3.	3.	5.	0.	47.
251	0.	4.	4.	4.	8.	5.	46.
261	1.	7.	6.	6.	12.	5.	52.
271	14.	21.	10.	7.	7.	15.	3.
281	15.	19.	19.	24.	26.	29.	1.
291	31.	19.	25.	24.	25.	27.	3.
301	46.	45.	53.	51.	56.	39.	5.
311	12.	13.	11.	16.	15.	18.	6.
321	22.	41.	27.	22.	30.	34.	13.
331	52.	58.	72.	80.	86.	111.	14.
341	132.	177.	205.	257.	301.	346.	53.
351	677.	826.	899.	960.	910.	963.	52.
361	1474.	1684.	1667.	1458.	986.	424.	150.
371	0.	0.	0.	0.	0.	0.	148.
381	0.	0.	0.	0.	0.	0.	593.
391	0.	0.	0.	0.	0.	0.	1260.
401	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	0.	1.	2.	0.	0.
431	0.	0.	0.	3.	0.	1.	0.
441	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	1.	1.	0.	1.	0.
461	1.	0.	1.	2.	0.	1.	1.
471	3.	3.	5.	6.	2.	5.	2.
481	0.	3.	1.	2.	0.	0.	2.
491	2.	1.	0.	2.	0.	1.	0.
511	0.	0.	0.	0.	0.	0.	1.

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005458-SAM-P *Dup*
File ID: 5a5985.CNF

Counted on: 12/ 5/96 @ 4:40
Detector: AEA5
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1468.0	1468.0	362.026	362.026	14.000	6.240	7.000	1.689
2	38.2	38.2	304.311	300.923	18.000	10.355	9.000	0.335
3?	0.0	0.1	258.523	258.523	0.000	0.100	0.000	0.100
4	35.6	35.6	229.291	229.205	12.000	3.615	6.000	2.655
5?	4.2	4.2	157.434	157.343	8.000	0.645	4.000	5.354

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err c/m @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Ra224	0.915	5.686	5.741	-0.0550.03	61.73	1.1	145.9	0.657E-04
	Pu236		5.755	5.741	0.014			139.9	0.630E-04
2	Am241	0.132	5.479	5.460	0.0190.05	8.90	3.3	21.0	0.947E-05
	Pu238		5.487	5.460	0.027			27.4	0.124E-04
3	????			5.265		0.00	****		
4	Pu239	0.012	5.147	5.130	0.0170.02	0.80	26.2	1.8	0.796E-06
	Pu240		5.144	5.130	0.014			1.8	0.796E-06
5	????			4.799		0.03	378.		
Totals:			1.059	<--valid peaks only-->			71.42		

DETECTOR CALIBRATION

Energy(MEV) = 4.076 + (0.0046)*Channel
Energy range (MeV): 4.076 TO 6.431
Efficiency = 0.4502 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	32386.0	100.000
Smoothed	32386.0	100.000
Composite fit	34299.6	105.909
Residuals	-1913.6	-5.909

Analyzed by: _____

1 Legend: Raw = Modeled Peaks = 1,2,.., etc Display Max.: 9405.5

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Raw. Data	Dump	for AEA	Spectrum:	5a5985.CNF	HNF-SD-WM-DP-222, Hz	J
1	0.	0.	0.	0.	0.	0.
11	0.	0.	2.	2.	1.	1.
21	0.	1.	1.	0.	0.	0.
31	1.	0.	0.	0.	0.	0.
41	1.	0.	0.	0.	0.	0.
51	0.	0.	0.	2.	1.	0.
61	1.	2.	0.	0.	0.	0.
71	0.	0.	0.	1.	0.	0.
81	1.	1.	0.	1.	1.	0.
91	0.	1.	2.	1.	0.	0.
101	0.	1.	0.	2.	1.	0.
111	0.	4.	2.	1.	0.	0.
121	2.	4.	2.	2.	3.	4.
131	3.	2.	4.	2.	3.	5.
141	2.	4.	8.	5.	6.	9.
151	9.	7.	8.	9.	12.	10.
161	5.	9.	7.	3.	2.	1.
171	5.	2.	1.	0.	1.	4.
181	4.	8.	3.	5.	3.	5.
191	2.	2.	0.	5.	4.	5.
201	4.	8.	9.	8.	13.	16.
211	12.	15.	19.	18.	21.	26.
221	29.	31.	39.	43.	56.	58.
231	59.	47.	40.	23.	33.	6.
241	5.	4.	2.	10.	5.	5.
251	6.	13.	10.	11.	8.	14.
261	10.	6.	7.	9.	8.	15.
271	16.	18.	19.	25.	18.	24.
281	29.	27.	37.	38.	42.	58.
291	31.	43.	58.	39.	49.	49.
301	63.	51.	61.	55.	62.	36.
311	44.	41.	34.	36.	40.	50.
321	57.	70.	71.	50.	81.	111.
331	123.	120.	148.	136.	151.	281.
341	272.	305.	325.	375.	410.	702.
351	840.	968.	991.	997.	1095.	1436.
361	1490.	1575.	1615.	1459.	1186.	116.
371	65.	21.	12.	4.	0.	0.
381	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	1.	0.
401	0.	0.	0.	0.	0.	0.
411	1.	0.	0.	1.	0.	0.
421	0.	0.	1.	2.	0.	2.
431	0.	1.	2.	1.	0.	0.
441	1.	0.	0.	0.	1.	0.
451	0.	0.	2.	0.	0.	2.
461	0.	1.	0.	0.	1.	6.
471	4.	2.	5.	3.	5.	5.
481	1.	2.	3.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.
511	0.	0.				

HNF-SD-WM-DP-222, REV. 0

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005459-SAM-P
File ID: 6a6806.CNF

Counted on: 12/ 5/96 @ 4:41
Detector: AEA6
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	999.1	999.1	358.182	358.182	18.000	10.477	9.000	3.246
2	62.6	62.6	298.945	298.735	18.000	9.188	9.000	1.670
3	82.4	82.4	226.368	226.330	16.000	10.264	8.000	3.555
4	17.3	17.3	153.597	153.580	16.000	12.250	8.000	3.462
5?	3.4	3.4	149.839	149.839	6.000	0.004	3.000	0.002

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err c/m @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Cm243	0.843	5.779	5.739	0.0400.05	43.71	1.4	121.3	0.546E-04
	Pu236		5.755	5.739	0.016			90.4	0.407E-04
2	Am241	0.070	5.479	5.465	0.0140.04	3.65	5.2	7.9	0.354E-05
	Pu238		5.487	5.465	0.022			10.3	0.463E-05
3	Pu239	0.066	5.147	5.132	0.0150.05	3.41	5.0	6.9	0.311E-05
	Pu240		5.144	5.132	0.012			6.9	0.311E-05
4	Np237	0.016	4.769	4.797	-0.0280.06	0.82	10.0	1.9	0.863E-06
5	????			4.780		0.05	123.		
Totals:			0.995	<--valid peaks only-->			51.59		

DETECTOR CALIBRATION

Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.4936 CPM/DFM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24889.0	100.000
Smoothed	24893.0	100.016
Composite fit	24789.3	99.599
Residuals	99.7	0.401

Analyzed by: _____

HNF-SD-WM-DP-222, REV. 0

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Raw	Data	Dump	for	AEA	Spectrum:	6a6806.CNF					
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	0.	1.	0.	1.	2.	0.	2.	1.	0.	0.
21	0.	5.	0.	3.	2.	0.	3.	2.	0.	4.	4.
31	1.	1.	1.	1.	0.	0.	0.	0.	0.	1.	1.
41	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
61	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.
71	0.	1.	0.	0.	0.	2.	0.	0.	1.	1.	1.
81	0.	0.	0.	0.	0.	1.	0.	1.	1.	1.	1.
91	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
101	0.	0.	1.	0.	1.	1.	1.	2.	0.	0.	0.
111	1.	0.	1.	1.	1.	0.	3.	2.	1.	2.	2.
121	1.	0.	3.	2.	1.	3.	1.	3.	1.	4.	4.
131	4.	2.	1.	4.	4.	6.	3.	3.	9.	6.	6.
141	11.	12.	10.	11.	17.	15.	10.	21.	17.	18.	18.
151	17.	12.	21.	14.	24.	13.	10.	14.	8.	8.	8.
161	14.	4.	7.	1.	2.	2.	1.	1.	2.	2.	2.
171	3.	0.	2.	5.	1.	2.	1.	2.	1.	1.	1.
181	2.	2.	3.	3.	7.	4.	3.	3.	6.	4.	4.
191	1.	1.	3.	9.	1.	2.	5.	2.	5.	12.	12.
201	4.	10.	10.	13.	15.	12.	12.	19.	15.	23.	23.
211	27.	36.	37.	23.	50.	42.	45.	42.	64.	62.	62.
221	66.	78.	74.	79.	103.	72.	93.	93.	63.	80.	80.
231	58.	48.	50.	26.	21.	12.	20.	4.	7.	2.	2.
241	2.	4.	1.	9.	8.	2.	4.	3.	7.	6.	6.
251	7.	6.	12.	5.	7.	13.	5.	6.	6.	9.	9.
261	11.	5.	18.	10.	18.	9.	17.	13.	9.	18.	18.
271	13.	13.	17.	20.	12.	18.	20.	24.	26.	26.	26.
281	35.	44.	37.	43.	36.	47.	45.	52.	53.	47.	47.
291	54.	42.	58.	52.	46.	65.	60.	82.	73.	87.	87.
301	56.	51.	60.	52.	60.	31.	32.	28.	19.	21.	21.
311	19.	20.	26.	25.	29.	33.	18.	36.	29.	28.	28.
321	45.	40.	43.	54.	50.	53.	56.	61.	57.	89.	89.
331	91.	94.	89.	118.	136.	170.	154.	178.	199.	236.	236.
341	257.	280.	334.	360.	471.	488.	539.	577.	653.	674.	674.
351	763.	831.	849.	952.	992.	1001.	989.	1059.	1080.	974.	974.
361	895.	836.	683.	572.	454.	298.	219.	140.	76.	55.	55.
371	23.	8.	11.	1.	3.	1.	0.	0.	0.	1.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.	2.
411	0.	0.	1.	1.	0.	1.	0.	0.	0.	0.	0.
421	1.	0.	1.	0.	0.	0.	0.	1.	1.	0.	0.
431	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
441	0.	2.	2.	1.	0.	0.	0.	0.	1.	0.	0.
451	2.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
461	0.	0.	1.	1.	2.	0.	2.	0.	1.	4.	4.
471	3.	2.	3.	5.	7.	3.	5.	2.	2.	4.	4.
481	9.	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	2.	0.									

Westinghouse Hanford Co.
 G E N E R A L A L P H A E N E R G Y A N A L Y S I S
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T005459-DUP-P
 File ID: 8a8774.CNF

Counted on: 12/ 5/96 @ 4:43
 Detector: AEA8
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	855.0	855.0	362.371	362.371	18.000	12.613	9.000	4.216
2	56.4	56.4	306.185	305.983	14.000	6.734	7.000	1.020
3	76.9	76.9	231.038	230.979	18.000	10.784	9.000	4.420

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Cm243	0.846	5.779	5.739	0.0400.06	38.03	1.5	207.7	0.936E-04
	Pu236		5.755	5.739	0.016			154.7	0.697E-04
2	Pu238	0.080	5.487	5.479	0.0080.03	3.60	5.1	19.9	0.897E-05
	Am241		5.479	5.479	0.000			15.3	0.687E-05
3	Pu239	0.067	5.147	5.134	0.0130.05	3.01	5.4	12.0	0.541E-05
	Pu240		5.144	5.134	0.010			12.0	0.541E-05
Totals:			0.993	<--valid peaks only-->			44.64		

DETECTOR CALIBRATION

Energy(MEV) = 4.072 + (0.0046)*Channel
 Energy range (MeV): 4.072 TO 6.427
 Efficiency = 0.2508 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21581.0	100.000
Smoothed	21581.0	100.000
Composite fit	21428.8	99.295
Residuals	152.2	0.705

Analyzed by: _____

VR

Spectrum 8a8774.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6271.2

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Raw Data Dump for AEA Spectrum: 8a8774.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
21	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
31	1.	0.	1.	1.	0.	0.	0.	1.	2.	1.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
51	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
61	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.
71	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
81	1.	0.	0.	0.	1.	0.	1.	2.	0.	1.
91	0.	2.	1.	2.	0.	1.	0.	1.	0.	0.
101	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.
111	0.	0.	2.	0.	0.	1.	0.	1.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	2.	3.
131	0.	3.	1.	1.	2.	2.	0.	2.	1.	2.
141	2.	3.	0.	0.	4.	2.	2.	2.	3.	1.
151	0.	4.	5.	3.	4.	1.	9.	5.	1.	2.
161	3.	6.	5.	2.	3.	1.	4.	3.	0.	0.
171	2.	0.	1.	1.	2.	1.	0.	0.	1.	4.
181	1.	3.	2.	0.	4.	2.	1.	1.	3.	4.
191	1.	4.	0.	7.	3.	4.	3.	3.	7.	6.
201	3.	5.	8.	5.	4.	5.	12.	9.	11.	7.
211	13.	8.	17.	11.	24.	14.	24.	25.	22.	35.
221	32.	55.	42.	57.	67.	64.	69.	74.	77.	89.
231	90.	77.	75.	79.	60.	62.	33.	46.	20.	25.
241	20.	10.	11.	9.	6.	5.	3.	2.	5.	1.
251	6.	7.	7.	9.	4.	1.	7.	13.	9.	2.
261	8.	10.	7.	6.	10.	8.	11.	9.	18.	7.
271	4.	9.	13.	11.	11.	13.	16.	17.	13.	22.
281	21.	20.	17.	20.	29.	25.	33.	34.	33.	32.
291	28.	40.	43.	48.	35.	38.	51.	55.	46.	51.
301	53.	58.	50.	55.	51.	77.	61.	64.	47.	31.
311	42.	33.	26.	18.	24.	19.	20.	20.	24.	21.
321	26.	17.	23.	30.	28.	35.	37.	53.	41.	59.
331	45.	51.	39.	65.	72.	65.	69.	72.	96.	131.
341	150.	145.	163.	176.	205.	271.	251.	271.	346.	417.
351	419.	504.	512.	584.	635.	672.	729.	767.	809.	893.
361	914.	890.	898.	858.	826.	752.	661.	580.	502.	374.
371	273.	182.	122.	77.	52.	32.	19.	6.	6.	0.
381	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
421	1.	2.	1.	0.	0.	1.	1.	0.	1.	0.
431	0.	0.	1.	0.	0.	0.	0.	0.	2.	0.
441	0.	0.	0.	2.	0.	2.	0.	0.	0.	1.
451	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
461	0.	0.	1.	2.	2.	1.	1.	0.	2.	0.
471	1.	1.	1.	0.	1.	1.	0.	2.	3.	6.
481	2.	2.	2.	0.	3.	1.	1.	5.	1.	2.
491	3.	0.	3.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DISTRIBUTION SHEET

To Distribution	From Production Planning & Control		Page 1 of 1	
Project Title/Work Order HNF-SD-WM-DP-222, Rev. 0, "60-Day Waste Compatibility Safety Issues and Final Results for AY-102 Grab Samples"			Date: 01/30/96 EDT NO.: EDT-62038 ³ ₂ <i>KMB</i> ECN NO.: N/A <i>1/31/97</i>	
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